Index

(1-(2-(β-galactopyranosyloxy)propyl)-4,7,10-tris	9-fluorenone carboxyhydroxyesters, 139
(carboxymethyl)-1,4,7,10- tetraazacyclododecane)	9-fluorenone, 135, 144
gadolinium (III) (EgadMe), 48	9H-(1,3-dichorlo-9,9-dimethylacridin-2-one7-yl),β-
α-amylase,	galactopyranoside (DDAOG), 6
genes, 342, 387	
β-galactosidase (β-gal), 42, 43, 67, 130, 141, 143, 144,	Abiotic stress, 267, 334-347, 381, 383, 386, 389, 396
323, 417	ABO antigens, 197
chimeric, 44	Abscissic acid (ABA), 386, 389, 390
E. coli see also E. coli	Acetylcholine esterase, 320
FDG system, 45	Acetyl-coenzyme A (acetyl-CoA), 43
hydrolysis, 48	Acinetobacter calcoaceticus, 175
plasmids see also Plasmids	Acinetobacter lwoffii, 176
proteins, 45	Acinetobacter radioresistens, 175
α-galactosidase, 132, 249	Acinetobacter species, 165, 167, 175
β-lactam,	Acinetobacter venetianus, 176
antibiotic, 62	Activin,
derivatives, 67	activin A, 152, 154
ring, 62	binding protein, 152
substrate, 64, 65	Acute vascular rejection (AVR), 249
β-lactamase (Bla), 42, 62-65, 67	Acyrthosiphon pisum, 212
detection, 65	Adenatomous polyposis coli gene, 120
expression, 62, 65	Adenine, 192
metallo-β-lactamase, 62	Adenosime, 143
TEM-1, 62	Adhesions, 216
TEM-1 Bla, 63	Adipocytes, 254
(log)linear, 14, 20, 25	Advanced backcross-quantitative trait loci
formalism, 2, 6, 7, 10, 12, 18	(AB-QTL), 276
models, 17, 30	Aedes aegypti, 223, 224
representations, 11, 13	Aequorea victoria, 49
(R)-2-hydroxy -1-phenylpropan-1-one, 415, 422	Aequorea, 57
(R)-benzoin, 415, 422	protein, 49
(S)-(-)-glycidol, 422	Aerenchyma, 387
(S)-cyanohydrins, 422	Aglycones, 139, 142
1,3-β-glucanase, 132	Agrobacterium tumefaciens, 317, 332
15,16-dihydroxyhexadecanoic acid, 177	Agrobaterium rhizogenes, 368
1-aminocyclo-propane-1-carboxylic acid (ACC), 384	Alasan, 167, 175
2-aminophenoxyazin-3-one, 422	synthesis, 167, 175
2-carboxyhydroxamide, 139	Albumin, 151, 154, 155
2-deoxy-D-galactopyranose, 142	human albumin gene, 255
2-deoxyglucose, 134	Alcohol dehydrogenase, 387
2-hydroxyethyl methacrylate, 415	Aldehyde dehydrogenase, 340
2-mercaptoethanol, 191	Alginate synthesis, 216
2-vinyl-4,4-dimethylazlactone, 415	Algorithms, 7, 88
3- aminopropyltriethoxysilane, 416	genetic, 28
3-[(2-aminoethyl) dithio] propionic acid, 100	numerical, 6, 7
3'azido-3'-deoxythymidine, 143	Alkaline phosphatase (AP), 42, 43, 67, 323, 416
3-aminopropylsilane, 415, 416	secreted see also Secreted alkaline phosphatase
4-aminoarabinose, 217	(SEAP)
4-carboxyhydroxyester, 139	streptadivin-conjugated, 415
4-methylumbelliferyl glycosides, 130	Alkanethiol, 407
4-phosphopantetheine cofactor, 174	Allele specific associated primers (ASAP), 292,294
5-bromo-4-chloro-3-indolyl galactoside (X-Gal), 44, 45	AlnA, 175
5-chlorocytosine arabinoside, 143	Alpha linolenic acid (ALA), 251
5-hydroxyconiferaldehyde, 337, 340	Alpha-fetoprotein, 154
5-hydroxyferulic acid, 337	Alpha-L-iduronidase, 366
6-O-acetyl-Dglucal, 415, 422	Alpha-tonoplast intrinsic protein (TIP), 366
7-hydroxy-9H-(1,3-dichloro-9,9-dimethylacridin-2-one	Alternansucrase, 135
(DDAO), 46	Alternative splicing, 78
7-hydroxycoumarin, 63	Aluminum oxide, 415
9-fluorenone carboxyhydroxamides, 139	Alzheimer's disease, 150, 253
* * '	

Amino acids, 43, 44, 49, 53, 169, 170, 172, 174, 206, 212,	Antimicrobial agent, 104, 165
213, 224, 253, 334, 341, 383	antimicrobial peptide (AMP), 223
adenylation, 170, 171	expression, 215
carboxy-terminal, 44	Antimycoplasmic, 166
derivatives, 333	Antiparasite, 223
homology, 175	Antitumor, 142
recognition, 184	properties, 166
sequence, 174, 175, 286, 316, 372	Antiviral,
transferase, 172	activity, 139, 142, 144
Amino transferase, 170 Aminoglycoside, 332	properties, 166 AP2 domain-binding protein, 393
Ammonia fiber expansion pretreatment (AFEX), 332, 343	Aplysia fasciata, 129, 130, 132, 133, 135, 138, 139, 144
Amphisin synthetase (<i>ams</i> Y),	hepatopancreas of, 140, 143
gene, 174	Aplysia, 130, 133
Amphisin, 165, 167, 172, 174	enzyme, 140, 142
synthetase see also Amphisin synthetase (<i>amsY</i>)	Aplysiidae, 130, 133
Ampicillin,	Apoalasan, 175
resistance gene, 62	Apoemulsan, 175, 176
Amplified fragment length polymorphism (AFLP),	Apoptosis, 189, 218, 250
283-285, 289	regulation of, 84
eco-AFLP markers, 289	Arabidopsis thaliana, 226, 317, 366, 382-384, 386,
markers, 273, 289, 295	389-391, 393, 394, 396
polymorphisms, 274	flowering locus C (flc) gene, 338
Pst-AFLP markers, 289	genes, 382
Amyloid precursor protein gene, 254	Arabinoxylans, 337
Amylopectin, 134	Arthritis, 103
Amylose, 134 Anaerobes,	rheumatoid, 117, 189 Arthrofactin, 165, 167, 174, 178
facultative, 50, 122	operon see also Operon
obligate, 50, 122	synthetase see also Synthetase
Anemia, 189, 195, 197	Arthropods, 205, 213, 227
Angiogenesis, 51, 85	Ascochyta blight, 277, 279, 280, 282, 295
retinal, 115	pathogen, 297
Ankyrin (ANK) domains, 214	Ascochyta rabiei, 279, 280, 282,295
genes see also Genes	pathogen, 297
Anopheles gambiae, 223	Aspergillus niger, 321
Anopheles stephensi, 223	protein, 140
Anopheles, 223	Aspergillus oryzae, 142
Anthozoa, 49	Astrocytes, 254
Anthrax toxin-β-lactamase fusion proteins, 64	Atherogenesis, 251
Anthrax, 218, 219	Atherosclerosis, 246, 252
toxin see also Toxins	Auxin, 386, 396
Anti-atherosclerotic effects, 251 Antibacterial,	response factor, 396 signaling, 395
properties, 166	Azidothymidine (AZT), 143
Antibiotics, 120, 121, 142, 222, 223, 333	rezidoutymidite (rez.t.), 143
β-lactam see also β-lactam	B. malayi, 214
Antibodies, 82, 95, 102-104, 106, 189, 197, 249, 321,	Bacillus anthracis, 218, 219
322, 364, 366	Bacillus cereus, 218, 219
anti-α-1,3 gal, 249	Bacillus mycoides, 218
anti-gal, 249	Bacillus pseudomycoides, 218
anti-epidermal growth factor receptor, 96	Bacillus sphaericus, 218, 219, 226, 217
CD11b, 103	Bacillus subtilis, 167, 170, 172
cell specific, 97	Bacillus thuringiensis toxins (BT), 222, 226, 227
cell surface specific, 46	corn, 222
conjugated nano rods, 107	cotton, 227, 346
fragment, 117	gene, 334, 347, 350
fv fragment, 366 monoclonal see also monoclonal antibodies	protein, 334 Profiles the ringing 212, 215, 218, 210, 222, 224, 226
neutralizing, 321	Bacillus thuringiensis, 212, 215, 218, 219, 222, 224, 226, 227, 371
production, 372	Bacillus weihenstephanensis, 218
recombinant, 364, 366, 369	Bacillus, 219
response, 99, 321	Bacteria, 43, 50, 53, 62, 79, 87, 114, 118, 119, 122-124,
single chain, 320	167, 172, 203, 204, 211, 215-217, 220, 222, 223,
Anticoagulant, 368	226, 228, 317, 324, 325, 334, 342, 394
Anti-coagulate gene tissue factor, 249	anaerobic, 118
Antifungal,	competent, 120
properties, 166	engineered, 119, 121

enteric, 222	Bioremediation, 166
entomopathogenic, 216, 222, 223	Biosurfactants, 165-167, 172-178
extracellular, 121	fungal, 165, 177
gram-negative, 62, 176, 216, 217, 222, 224, 226	glycolipid, 165, 167, 172, 177
gram-positive, 62	lavolipids, 167
marine, 132	lipopeptide, 165, 170-172
non-pathogenic, 113, 114, 118-121, 123, 124, 217	synthesis, 167
pathogenic, 217, 226	Biotic stress, 267
phytopathogenic, 221	biotin, 99
symbiotic, 212	avidin system, 415
therapeutic, 115	Bis(psulfonatophenyl) phenyphosphine (BSP), 106
thermophillic, 341	Blastocyst, 247 Blood clotting disorder, 316
vertebrate-associated, 220 Bacterial artificial chromosome (BAC), 298	Blood transfusion, 189
Bacterial,	therapies, 187
agent, 383	Bluco, 65
blight, 383	Blue GFP (BFP), 50, 53
cell extract, 62	BFP5, 53
DNA see also DNA	Bone marrow proteins (BMPs), 152
enzyme, 43	Bone marrow, 188, 191
genes, 206, 211, 332	mouse, 156
genomes see also Genome	proteins see also Bone marrow proteins (BMPs)
lipopolysaccharides see also Lipopolysaccharides	reconstitution, 187
(LPS)	transplantation, 187
lipoprotein see also Lipoprotein	Borrelia burgdorferi, 324
luciferase see also Luciferase	Botrytis cinerea, 280
p450, 409	Bovine alpha-lactalbumin (LALBA), 255
pathogen see also Pathogen	Bovine serum albumin (BSA), 104, 190, 191
protein see also Proteins	Bowman-Birk Ser protease inhibitor, 372
RNAi see also RNAi	Brachyury, 151
symbionts, 214	Brassica carinata, 368
virulence see also Virulence	Brassica napus, 368
Bacteriocin, 217, 225	Brassica oleracea, 282
Bacteriocytes, 205, 211	Brassica rapa, 282
Bacteriome, 205	Breast cancer, 57
Bacteriophage, 212 Baumannia cicadellinicola, 213	Buchnera aphidicola, 206, 212
B-cell CLL/lymphoma 2 (BCL2), 255	Butyl methacrylate, 416
Benzothiadiazole (BTH), 384, 386,	C. anatolicum, 272-274
Benzoyl-arginine- <i>p</i> -nitroanilide, 407	C. arietinum, 269-274, 276, 280-284, 286, 288, 289,
Benzyl xylopyranosides, 142	295, 298, 299
Beta-catenin, 120, 122, 123	C. bijugum, 269-274, 277-281, 286, 288, 299
mRNA, 121, 123	C. chorassanicum, 269-274, 277, 279, 281, 288
Bibliomic, 3	C. cuneatum, 269, 271-274, 277, 279, 281-283, 286, 299
Bifidobacteria, 141	C. echinospermum, 269-274, 276-281, 295, 299
Biobanks, 82, 429-438, 440-443	C. incisum, 269
therapeutic, 434	C. judaicum, 269-273, 276-281, 288, 299
Biocatalyst, 129, 131-133, 144	C. pinnatifidum, 269-273, 277-282, 284, 286, 288, 299
Biochemical Systems Theory, 8, 12	C. reticulatum, 269-274, 276-282, 284, 286, 288, 289,
Biodiesel, 332, 334, 335	295, 299
Bioethanol, 332	C. yamashitae, 269-270, 273, 274, 277, 280, 288, 299
cellulosic, 332	C6 glioma cells, 64, 65
Biofuel, 331-336, 338-340, 342, 344, 346-349, 351	Cadaver, 216
Biolibraries, 429	Cadherin, 227
Bioluminescence resonance energy transfer (BRET),	mutatuin see also Mutation Caenorhabditis elegans, 252, 320
57, 58, 60 Bioluminescence,	Caffeic acid, 337, 338
approach, 46	Caffeoyl CoA 3-O-methyltransferase (CCoAOMT), 337
blue-green, 55	Caffeoyl CoA, 337
BRET see also Bioluminescence resonance energy	Calmodulin, 55
transfer (BRET)	Camgaroo, 55
Bioluminescent,	cAMP, 55
enzyme, 65	Cancer, 53, 56, 78-81, 83, 84, 95, 101, 116, 118, 246, 251
Bioreactors, 367, 370	431, 437, 439
chloroplast, 370, 371	breast see also Breast cancer
oil body, 368	cell mobility, 51
plant, 363, 364, 367-369, 371-373	cells, 96, 97, 99, 102,103
seed, 364, 366, 367, 369	cervical see also Cervical cancer

colon see also Colon cancer	MEDEP see also Mouse ES cell-derived erythroid
glioma see also Glioma cancer	progenitor (MEDEP)
oral see also Oral cancer	mouse see also Mouse
progression, 84, 85	MS-5 stromal, 191, 193
prostate see also Prostate cancer	oral cancer see also Oral cancer
Candida antarctica, 177	oral epithelial, 102
Candida bombicola, 177	skin, 96
Candida species, 167	tumor see also Tumor
Canonical formalism, 27	Cell membrane, 46, 95, 102, 117
models, 27	lipophilic, 116 receptors, 106
Capsid protein L1, 316, 323	Cell surface, 42, 46, 64, 176, 249, 323
Carbocyanine dye, 65	carbohydrate see also Carbohydrates
Carbohydrates, 130, 139, 144, 211, 212, 250, 322, 342,	esterase, 176
382. 387	glycoconjugates see also Glycoconjugates
binding modules, 338	Cell suspension cultures, 364
cell surface, 249	carrot, 323
Carboxy-methyl-cellulose (CMC), 341-343	rice, 372
Carcinogenic, 154	tobacco, 324
Cardinium hertigii, 214	transformed, 372
Cardiovascular disease, 246	Cell wall, 332, 336, 337, 338-343, 347 383
Fat-1, 251	modification, 335
Carotenoids, 292	mutant, 337
Carsonella ruddii, 206	plant, 369
Cartesian space, 8, 11	polysaccharides, 339
CAT see also Chloramphenicol acetyltransferase (CAT)	synthesis, 324
Cathepsin D inhibitor (CDI), 372	Cell-based therapies, 149, 150
Caudalrelated homeobox 2 (Cdx2), 151	Cellobiose, 130, 135, 137, 177
Cauliflower mosaic virus (CaMV),	Cell-permeable near-infrared (NIR) fluorogenic
35S promoter, 319, 369	β-lactam, 65
CCF2, 63, 64	Cells, 3, 4, 28, 29, 42, 45, 46, 63, 64, 66, 67, 78, 80, 87,
CD30, 322	95, 102, 105, 113, 116-118, 154, 170, 192, 247, 319
CD38, 151	382
CD39, 249, 250	adherent layer, 191
CD46, 249	albumin-secreting, 154
CD59, 249	analysis, 67
CD8+T-cell, 100, 101	applications, 45
cDNA, 298, 316, 390	bacterial see also Bacterial
library, 386	B-cell see also B-cells
Cell culture, 62, 64, 158, 191	bile duct, 152
animal, 363	biliary, 153
mammalian see also Mammalian	C6 glioma see also C6 glioma cells cancer see also Cancer
plant see also Plant cell culture suspension see also Cell suspension cultures	cell line see also Cell lines
Cell cycle, 23, 158	cell-based reporter assay, 63
eukaryotic, 212	cell-based therapies see also Cell-based therapies
machinery, 86	cell-cell interactions, 158
mitotic, 86	communication, 42
progression, 26	culture see also Cell culture
regulation, 26	cycle see also Cell cycle
Cell lines, 42, 63, 107, 158, 194-196, 197	cytoplasm, 116, 118
COS7, 65	density, 167, 170
differentiated, 196	e-cell see also e-cell
embryonic stem see also Embryonic stem (ES) cells	elongation, 387
endothelial, 153	embryonic stem cells see also Embryonic stem (ES)
epithelial see also Epithelial	cells
erythroid progenitor see also Erythroid progenitor	endothelial see also Endothelial
cell lines	epithelial see also Epithelial
erythroid, 195-197	erythroid progenitor see also Erythroid progenitor
feeder, 193, 194	cells
HEK293 see also Human embryonic kidney	eukaryotic, 211
mammalian cell line (HEK293)	extracts, 44, 176
HeLa see also HeLa cells	fluorescent-activated cell sorting see also
hematopoietic, 194, 195	fluorescent-activated cell sorting
immortalized, 196	function, 157
leukemia see also Leukemia	germ see also Germ cells
macrophage see also Macrophage	glial see also Glial cells

	growth, 80	events, 41
	hematopoietic see also Hematopoietic cells	feature, 96
	homing, 157	functions, 23
	imaging, 45, 96	growth, 80
	label-free, 56	imaging, 42
	lineages, 155	level, 166, 319
	lymphoid, 250	markers, 152
	lysate, 422	medium, 5
	machinery, 117	membrane, 211
	macrophage see also Macrophage	metabolism, 24
	malignant, 102	microenvironment, 158
	mammalian see also Mammalian	processes, 4, 27, 84
	mammary epithelial cells see also Mammary	protein see also Proteins
	epithelial cells	response, 4, 85, 219, 249
	MEDEP see also Mouse ES cell-derived erythroid	states, 88
	progenitor (MEDEP)	strains, 27
	membrane see also Cell membrane	stress, 84, 85
	mesenchymal stromal see also Mesenchymal stromal	surface, 423
	cells (MSC)	uptake, 100, 104, 106
	mesophyll see also Mesophyll cells	Cellulase, 332, 341-343
	metabolism, 4	microbial, 341, 342
	mononuclear see also Mononuclear cells	Cellulomonas fimi, 338
	natural killer see also Naural killer (NK) cells	Cellulose binding motif (CBM), 338
	neural see also Neural	Cellulose synthase (Ces A), 337, 340
	neuronal see also Neuronal cells	gene, 337, 340
	nonmalignant, 102	Cellulose, 332, 336-338, 340, 341, 343, 351
	pancreatic islet, 150	biosynthesis, 337, 338
	permeability, 67	crystallization, 338
	permiabilization, 67	hydrolysis, 332
	phloem, 391	synthase see also Cellulose synthase (Ces A)
	physiology, 4	Central Processing Unit (CPU), 7
	pig see also Pig	Cephalosporin, 63, 64
	plant see also Plant cells	nucleus, 65
	population, 45, 158	Cephalosporin, 64
		* * *
	progenitor see also Progenitor cells	Ceratitis capitata, 224
	programmed death, 54	Cercopithecus aethiops, 220
	proliferation, 190	Cervical cancer, 316, 323
	propagation, 317	CFP see also Cyan fluorescent protein (CFP)
	recycling, 173	cGMP, 55
	red blood cells see also Red blood cells (RBCs)	Chagas disease, 223
	somatic see also Somatic cells	Chaperone crystal protein, 371
	specific antibodies see also Antibodies	Chaperones, 4, 211
	specificity, 44, 113	Chemiluminescent phenyl phosphate-substituted
	stem cell see also Stem cells	dioxetane (CSPD), 43
	surface see also Cell surface	Chemokine C-X-C motif receptor 4, 151
	survival, 80	Chickpea, 267-281, 284-289, 291, 292, 295-299
	T-cells see also T-cells	genome, 272, 287, 289, 291, 294, 298
	therapies, 156	genomics, 297, 297
	therapy see also therapy	genotypes, 277
	tissue-specific, 150, 152	germplasm, 268, 274, 292, 298
	tracking, 254	hybridization, 276
	transcription machinery, 116	pathogens of, 296
	transplantation, 155	production, 277
	tumor see also Tumor	Chitinases, 383
	turnover, 150	Chloramphenicol acetyltransferase (CAT), 41-43, 67, 333
	types, 1, 43, 84, 99, 118, 187, 254	Chloramphenicol, 43
	viability, 103, 104, 192	chloramphenicol acetyltransferase see also Chloram
	wall see also Cell wall	phenicol acetyltransferase (CAT)
Cell	ular,	Chloroform extraction, 104
	adaptation, 26	Chloroplast, 319, 323, 324, 364, 370, 371
	behaviour, 4	bioreactor see also Bioreactors
	characteristics, 155	genes, 371
	circuits, 3	genome, 370
	compartments, 323	transformation, 371
	components, 3, 368	transit peptide, 323, 370
	compounds, 172	Chlorosis, 391
	development, 42	CHO-cells, 322

Cholera toxin B-subunit, 322	Cytomegalovirus (CMV)
protein, 371	CMV-β-actin promoter, 250
Cholesterol, 190, 191, 251, 252	promoter, 44
Choreic movement, 253	Cytoplasm, 79, 100, 105, 113, 116, 333
Chromophore, 44, 49, 55	cell see also Cells
Chromosomes, 206, 246, 247, 270, 272, 287, 294, 370	oocyte, 247
bacterial artificial see also Bacterial artificial	Cytoplasma, 63
chromosome (BAC)	Cytoplasmic incompatibility (CI), 213
chickpea, 289	Cytoplasmic tail (CT), 366
diploid, 272	Cytotoxic, 96, 103
Chrysops, 218	Cytotoxin,
Chymotrypsin, 372	XaxAB, 225
inhibitor gene see also Genes	. , .
Cicer, 267, 269, 270-274, 277-282, 286, 288, 296, 298,	Death decoy receptor (TR6/DcR3), 250
299	Decay-accelerating factor (DAF), 249, 250
germplasm, 279	Deglycosylation. 323
Cicereae, 269	Dehydratation-Responsive Element-Binding protein
Cinnamic acid, 218	(DREB1), 389
Circuits,	Delayed xenograft rejection (DXR), 249
cellular see also Cellular	Delta 12 fatty acid desaturase, 255
genes see also Genes	Dementia, 253
Citric acid,	Depression, 251
production, 27	Desmodus rotundus, 371
Cleaved amplified polymorphic sequences (CAPS), 293	Dexamethasone (Dex), 154
Clostridium cellulovorans, 338	D-galactosamine, 175
CBM3 see also Genes	D-galactosaminuronic acid, 175
Clostridium thermocellum, 342	D-glucosamine, 65
CMV-β-actin promoter, 250	D-glucose, 175
Coleoptera, 218, 219	D-glucuronic acid, 175
Colon cancer, 56, 120, 122, 123	Diabetes, 150, 246, 251-253, 316, 441
silencing of, 120	type 2, 253
SW480 cells, 121-123	Diabrotica virgifera, 219
Colonization, 51	Diacylglycerol, 324
Colorimetric	Diacylglyceryl transferase, 324
assay, 44, 45, 63	Diamino-dideoxy glucosamine, 175
substrates, 63	Dickeya dadantii, 212
Commelinoid monocots, 336	Diferulic acid diester bridge, 336
Complement reaction, 249	Differential translation, 77,
Computational,	efficiency, 78
analysis, 228	Dimethylformamide (DMF), 134
manipulation, 2	Diorders, 96
tools, 6	metabolic see also Metabolic
Coniferaldehyde dehydrogenase, 340	Dipeptidyl peptidase IV (DPPIV), 152
Coniferaldehyde, 337	Diptera, 218, 219, 225
Coniferyl alcohol, 339	Diseases, 4, 43, 53, 67, 78, 95, 96, 99, 113-116, 120,
Costelytra zealandica, 215, 225	158, 159, 205, 212, 215, 220, 223, 225, 253-255
Crohn's disease, 118	278-280, 292, 316, 344, 383, 436, 437, 440
Cross-linked enzyme aggregate (CLEA), 417	agents, 219, 223
membrane, 417	airway, 253
Crystal toxin (Cry), 219, 227	Alzheimer's see also Alzheimer's disease
Culex pipiens, 213	amber, 215, 225
CXCR4, 151	bacteria, 220
anti-CXCR4, 97	cardiovascular see also Cardiovascular disease
Cyan fluorescent protein (CFP), 50, 54	Chagas disease see also Chagas disease
Cyclin-dependent kinase inhibitors, 214	Crohn's see also Crohn's disease
Cyclodepsipeptide, 176	Foliar see also Foliar disease
Cycloheximide, 81	gastrointestinal, 118
Cynomolgus monkey, 194	gene see also Genes
Cyst nematode, 280, 282, 285	genetic, 253
Cystic fibrosis transmembrane conductance regulator	heart, 43
(CFTR), 253	human see also Human
Cystic fibrosis, 253	Huntington's see also Huntington's disease
Cytidine, 143	infectious, 124
Cytochrome P450 (CYP), 151, 154, 155	inflammatory see also Inflammatory diseases
Cytokerain 18 (CK18), 154	liver see also Liver diseases
Cytokines, 149, 154, 189-191	lung see also Lung
Cytolytic toxin (Cyt), 219, 227	Lyme see also Lyme disease

metabolic see also Metabolic	RNAi-based, 115, 116
Newcastle see also Newcastle Disease	toxicity see also Toxicity
Parkinson's see also Parkinson's disease	dsRNA, 114
plant, 220	Dynamic systemic behaviour, 7
reduction, 223	
resistance, 227, 245, 292, 298	E. coli, 3, 24, 50, 62, 115, 119, 121-123, 206, 211, 224,
respiratory, 116	225, 227, 316, 317, 322, 324
soft rot, 212	β-galactosidse, 142
specific alleles, 114	BL21, 176
transmission, 223	cytosine deaminase, 118
viral see also Viral Disodium hydrogen phosphate dodecahydrate, 192	HB101, 174
Disulfide linkage, 316, 322, 325	heat-labile enterotoxin, 323 network, 24
Dithiocarbamate (DTC), 102, 106	OmpA, 175
Diversity array technology (Dart), 283	protease-deficient, 372
D-luciferin, 65	E-cadherin, 151
D-luciferin-galactoside (Lugal), 46	e-cell, 4
D-mannitol, 192	EcoR1, 233
D-mannose, 175	Ectoderm, 150
DNA, 100, 101, 172, 174, 206, 246, 271-273, 283, 287,	EGFP see also Enhanced green fluorescent protein
292, 318, 332, 333, 370, 382, 432,	(EGFP)
analysis, 99	Eicosanoids, 218
bacterial, 206	Eicosapentaenoic acid (EPA), 252
banks, 429	Electron microscopy, 96
binding domain, 383	Electronic oscillation, 94
binding sequence, 393	ELISA see also Enzyme-linked immunosorbent assay
cDNA see also cDNA	(ELISA)
characterization, 132	Elongation initiation factor 4E (eIF4E), 79, 82-84, 87
chromosomal, 174	activity, 83
Cry9C, 350	Embossing, 407
damage, 194	Embryo, 191, 247, 253
delivery, 99, 104	rescue technique, 283
elements, 214 exogenous, 56	sac, 282 tissue explants, 153
expression, 117	Embryogenesis,
fingerprinting, 287	Drosophila, 85, 215, 216, 221, 222
fragments, 174, 283, 333	Embryoid bodies (EBs), 150, 153, 154
genomic, 283, 284, 287	Embryoid body, 194
marker, 268, 273, 280, 283, 287-289, 291, 295	Embryonic stem (ES) cells, 149, 247
methylation, 248	cell lines, 19, 196
prokaryotic, 205	derivatives, 196, 197
promoter, 383	derived liver cells, 149
replication, 206, 211	differentiation, 154
shRNA-encoding, 116	mouse see also Mouse
supercoiled, 101	proliferation 153
T-DNA, 319, 333	technology, 158, 247
vaccination, 100	Emulsan, 176
DnaA, 211	Endo-1-4-β-glucanase, 337
Docosapentaenoic acid (DPA), 252	Endocytosis, 65, 105, 106
Dot-immunogold assay, 98	receptor-mediated, 105
<i>Drosophila melanogaster</i> , 212, 214 Drugs, 42, 60, 104, 114, 116, 117, 119, 120, 158, 166,	Endoderm, 150-152 definitive, 151, 152, 154
256, 315	hepatic, 153
action, 28	visceral, 152
animal-derived, 316	Endoglucanase, 341, 343
anticancer, 143	Endoplasmic reticulum (ER), 85, 320, 322
anti-HIV, 143	Endosymbionts, 205, 206, 211-213, 223
antitumor, 64	facultative, 211
candidate selection, 158	manipulation, 222
delivery systems, 130	phylogenies, 205, 206, 211, 212
delivery vehicles, 116	primary, 205
development, 67	Endothelial,
discovery, 149, 150, 158	cells, 250
drug interaction, 155	Endoxylanases, 341
metabolism, 155	Enhanced green fluorescent protein (EGFP), 50, 60
multi-drug resistant pathogens, 166	Enterobacter aerogenes, 224
resistance, 43, 53	Enterobactera sp, 222

Enterobacteria, 211, 219-222	cells, 82, 83, 121, 155, 219, 222, 250, 344
Enterobacteriaceae, 220	cell line (HaCat), 102
Enterokinase, 53	HOC313 clone8, 102
Enterotoxin, 323	HSC3, 102
Entomopathogenic nematodes (EPN), 216, 226 EnvZ/OmpR, 55	mammary epithelial cells see also Mammary epithelial cells
Enzymatic rate-laws, 8	oral cell line see also Cell lines
Enzyme kinetics, 8, 12	phenotype, 154
determination of, 415	Erlose, 137
functions, 10	Erwinia carotovora, 221
Michaelis-Menten see also Michaelis-Menten	Erwinia chrysanthemi, 212
Enzyme replacement therapy, 322, 324	Erythroblast, 190, 191, 193
Enzyme-linked immunosorbent assay (ELISA), 346, 409	enucleation, 190, 193
Enzymes, 10, 17, 45, 55, 64, 120, 131, 133-135, 137,	Erythrocytes,
140-144, 171, 176, 177, 251, 283, 320, 322-324,	human, 26 Erythroid progenitor cell lines, 194-196
335, 337, 340-343, 347, 366, 405, 409, 415, 417, 422 activity, 45, 67, 332	ES-cell derived, 195
aplysia see also Aplysia	Erythroid progenitor cells, 189-194
bacterial see also Bacterial	enucleation of, 190
bioluminescent see also Bioluminescent	Erythropoietin (EPO), 189-192, 320, 322, 369
chloramphenicol acetyltransferase see also	receptor, 189
Chloramphenicol acetyltransferase (CAT)	Escherichia coli see also E. coli.
complexes, 165	E-selectin, 252
cross-linked enzyme aggregate see also Cross-linked	Eskimos, 251
enzyme aggregate (CLEA)	Esophagus, 220
cytochrome P450 see also Cytochrome P450 (CYP)	Essential fatty acids (EFAs), 251
cytoplasmic, 114	Estrogen-responsive element – luciferase (ERE-luc), 57
digestion, 339	Ethanol,
EcoR1 see also EcoR1	fermentation, 387
enzyme-linked immunosorbent assay see also	production 27
Enzyme-linked immunosorbent assay (ELISA)	Ethanolamine, 191
eukaryotic see also Eukaryotic	Ether bond, 64, 65
geobacillus see also Geobacillus	Ethylene dimethacrylate, 415
glycosyl see also Glycosyl enzyme	Ethylene glycol, 95
glycosyltransferases see also Glycosyltransferases golgi enzyme, 369	Eukaryotic, algae, 370
hydrolysis, 65, 339	cells see also Cells
hydrolytic, 336, 339	cell cycle see also Cell cycle
immobilization, 414, 416	cellular membranes, 211
immobilize, 409	enzymes, 323
immobilized, 423	genome, 284, 287
kinetic properties see also Kinetic properties	infections, 212
kinetics see also Enzyme kinetics	organisms, 317, 320, 324
lysosomal enzyme see also Lysosomal enzyme	post-transcriptional signal, 214
mammalian see also Mammalian	taxa, 205
microreaction, 422	Exo-glycosidases, 129, 131
microreactors see also Microreactors	Exon-arrays, 78
multiplex assay see also Multiplex enzyme assay	Expressed sequence tags (ESTs), 285, 299
processes, 405, 406, 409	alleles, 299
Pst1 see also Pst1	library, 299
reaction devices, 423	markers, 299
reactions, 407-409	Extinction coefficient, 49, 51, 94
replacement therapy see also Enzyme replacement	EAT 1 4 : 252
therapy	FAT-1 protein, 252
rhamnosyltransferase 1 see also	fatty acid desaturase gene (fat-1), 252
Rhamnosyltransferase 1 streptavidin conjugated, 415	humanized version of, 252
treatment, 43, 65	Feminisation, 214 Fertilizers, 332
ubiquitin conjugating, 384, 391	Ferulate 5 hydroxylase (F5H), 337, 340
Epiblast, 151	Ferulic acid, 336-340
Epidermal fluorescence (ref), 337	Feruloyl CoA, 337
Epidermal growth factor receptor (EGFR), 96	Feruloyl transferase, 340
anti-EGFR, 102	Fetal calf serum (FCS), 191
Epithelial cell adhesion molecule (EpCAM), 152	Fibrinogen, 415
Epithelial to mesenchymal transition (EMT), 84	Fibrobacter succinogenes, 226
Epithelial,	Fibroblast growth factors (FGFs), 152, 154
damage, 122	Fibroblast, 82

fetal-derived, 247 growth factors see also Fibroblast growth factors	Fusarium wilt, 278, 279, 281, 294, 298 pathogen, 296
(FGFs) Firefly luciferase (Fluc), 46, 55, 60, 65, 67 cFluc, 62	resistance, 292, 294 Fusion proteins, 53, 368, 371 oleosin, 368
nFluc, 62	Fusoce, 133
Flavin adenine dinucleotide phosphate (FADP), 43	
Flavin mononucleotide (FMNH ₂), 55	Gadolinium, 48
Flavobacteria, 214	Galactobioside, 141
Flt3 ligand (Flt3-L), 190 Flukes, 220	Galactose biosynthesis pathway, 24 Galactose, 44, 45, 48, 133, 141, 142, 249, 322
Fluorescein, 45, 63	biosynthesis pathway see also Galactose biosynthesis
Fluorescein-di-β-D-galactopyranoside (FDG), 45	pathway
Fluorescence resonance energy transfer (FRET), 53-55,	epitope, 249
65, 65	Galactosylation, 142, 143
Fluorescence, 45, 49, 50, 54, 60, 67	Gametes, 270
blue, 63	Gastrointestinal mucosa, 124
green, 63 intensity, 99	Gastrulation, 151 GATA,
microscopy, 96	biding protein, 151
properties, 98	GCaMP, 55
resonance energy transfer see also Fluorescence	Gene delivery, 99, 101
resonance energy transfer (FRET)	methods, 100
two-photon, 96	Gene expression, 1, 27, 41, 42, 55, 56, 64, 67, 77, 78, 80,
Fluorescent-activated cell sorting, 64 Fluorophores, 50, 53, 63	84, 88, 116, 151, 155, 178, 211, 216, 298, 324, 383,
formation, 50	389, 394, 396 analysis, 24, 151
organic, 63, 96	characterization of, 77, 78
Fluorouridine, 143	control of, 247, 248
Flux balance analysis (FBA), 22, 23	detection of, 42, 67
analysis, 23	differential, 42
applications, 27	dynamics of, 42
models, 23, 28 Flux, 6, 7, 12, 13	evaluate, 67 hepatic, 151
balance, 8	imaging of, 48, 62
distribution, 8, 22	inducers of, 43
flux balance analysis see also Flux balance analysis	markers for, 55
(FBA)	microarrays, 78
network flux vector see also Network	monitoring, 57, 67
operating, 12	pathways, 78, 79
optimization, 22 saturation fraction of, 11	profile, 26 programs, 83, 87
steady-state see also Steady-state	regulation of, 77-79, 83, 86
values, 10	reporter see also Reporter genes
Fluxomic, 3, 29	repressors of, 43
Foliar disease, 279, 280	responsive, 390
Follistatin, 152	verification of, 154
Food poisoning, 46 Forkhead box A2 (Foxa 2), 151, 152	visualization of, 66 yeast see also Yeast
Formalism,	Gene gun,
canonical see also Canonical	bombardment, 100
lin-log see also Lin-log	technology, 100
(log)linear see also (log)linear	Gene regulation, 167, 393
power-law see also Power-Law	mechanism, 166
sC see also Saturating and Cooperative (SC) formalism	Gene silencing, 114-116, 117, 118, 120-122, 124, 333, 370, 372
Fragile X mental retardation protein (FMRP), 84	allele-specific, 122
FRET see also Fluorescence resonance energy transfer	analysis of, 122
(FRET)	intestinal, 124
Fructose-1,6-bisphosphatase, 339	mechanism, 113
Fucosyltransferase,	post-transcriptional, 114
human α-1,2 Fucosyltransferase gene, 250	RNAi-mediated, 114, 118, 121
Fungi, 167, 177, 203, 394 genome, 382	therapeutic gene see also Therapeutic gene tool, 120
pathogenic, 174	Gene therapy, 67, 101, 107, 117, 118
Furin, 64	Trials, 118
Fusarium oxysporum, 278, 296	Generalized Mass Action model (GMA), 6, 12, 13, 23,

11.15	F 150
power-law model, 17	Foxa, 152
Genes, 3, 4, 22-24, 78-80, 83-86, 88, 99, 100, 119, 120,	fucosyltransferase see also Fucosyltransferase
122, 151, 154, 155, 167, 169, 172, 173, 176-178,	function, 107, 114, 116, 123, 382
197, 211, 212, 214, 217, 219, 221-224, 226, 227,	gacS, 174
246, 248, 249, 255, 267, 268, 274, 276-279, 282, 284, 285, 287, 288, 291, 292, 294-298, 318-320,	Gata, 152 gun see also Gene gun
323, 332-335, 338, 340, 341, 346, 370, 381-384,	haptocyte-specific, 154
386, 387, 389, 391, 393, 395, 396	heat shock see also Heat Shock genes
A20, 250	hepatic, 154
alpha-1,3-galactosyltransferase, 249, 250	homologous, 291, 393
α -amylase see also α -amylase	Huntington see also Huntington's
afp, 225	introgression, 285, 291, 299
albumin see also Albumin	invasin see also Invasin (Inv)
alleles of, 285	isolation of, 295
alnA, 175	isozyme, 283
amphisin synthetase see also Amphisin synthetase	ituA, 170, 172
(amsY)	ituB, 170-172
ampicillin resistance see also Ampicillin	ituC, 170-172
amyloid precursor protein see also Amyloid	ituD, 170, 172
precursor protein gene	lef, 218
ANK, 214	<i>lic</i> TE, 170, 172
antitrypanosomal, 223	LIP9, 389
AP2 domain-binding protein see also AP2 domain-	lipopeptide synthase, 171
binding protein	listeriolysin O see also Listeriolysin O gene (HlyA)
APC see also Adenatomous polyposis coli gene	loci, 273, 285, 292
Arabidopsis thaliana see also Arabidopsis thaliana	luxA, 55
arfA, 172, 174	luxB, 55
arfB, 172, 174	mapping, 283
arfC, 172, 174	metabolic, 206
arrays, 211	nematode resistance, 285
Aux/IAA, 386	network, 23, 24, 382, 383, 389, 390, 393-395
bacterial see also Bacterial	non-mapped, 291
BTH induced, 386	Npt II see also Neomycin phosphotransferase type II
CBM3, 338	(nptII)
cellulose synthase like, 337	ONAC044, 387
Ces A see also Cellulose synthase (Ces A)	ospA, 324
chip, 297	pagA, 219
chloroplast see also Chloroplast chymotrypsin inhibitor, 386	phosphate starvation see also Phosphate Starvation Genes (PSI)
circuits, 3, 23, 24	Pi transporter, 391
cloning of, 284, 298	pig see also Pig
cluster, 176, 298	pool, 274, 276, 279, 282, 283, 298, 299
cold resistance, 276	promoter of, 382
complement inhibitor, 249	propagate, 22
complexes, 276, 299	pswP, 176
comQ, 170	pyramid, 292
comS, 169	pyramiding of, 279
CRL1/ARL1, 395	recessive, 278, 294-296
cya, 219	regulation see also Gene regulation
defective, 99	reporter see also Reporter genes
defence, 383, 384, 386, 394, 395	resistance, 274, 275, 278, 280, 292, 294-296, 298,
deleterious, 296	299
deletion, 23	retinoblastoma see also Retinoblastoma gene
delivery see also Gene delivery	rhlA, 165, 173
disease, 123	rhlAB, 165, 173
duplication, 274	rhlB, 165, 173
dwarfing, 285	rhlI, 165, 173
evolution of, 295	rhodoposin, 250
exchange, 270	rice see also Rice
expansin genes (EXPA), 387	RIG-I see also Retinoic acid inducible gene I (RIG-I)
expression see also Gene expression	sequences, 297, 390
fatty acid desaturase see also Fatty acid desaturase	Serrawettin synthetase, 177
gene (fat-1)	sfp, 169, 171
Flc see also Arabidopsis thaliana	silencing see also Gene silencing
Foc4, 294	sPI-II, 372 Storility, 285
Foc5, 294	Sterility, 285
foreign, 370	stla, 218

stress protection, 390	scale metabolic model, 23
structural, 170, 289, 383	stoichiometric model, 23
sub1-A, 387	studies, 77, 78, 83, 87
sucrose synthase (Sus), 337, 387	Genomics, 3, 24, 29, 203, 228
suicide, 254	
	chickpea see also Chickpea
swrA, 177	Genotype, 4, 22, 23, 196, 247, 277, 278, 285, 292-294
swrI, 177	chickpea, 299
swrR, 177	Geobacillus, 132
swrW, 177	enzyme, 133
T3SS see also Type III secretion system (T3SS)	Geometric programming, 28
tagging of, 268, 284, 285, 287, 291, 292	Geotrichum candidum, 177
tc, 221, 226	Germ cells,
therapeutic see also Therapeutic gene	male, 247
therapy see also Gene therapy	modification, 247
traits, 295	layers, 151
transcription, 56	GFP see also Green fluorescent protein (GFP)
transfer, 206, 214, 274	Glial cells, 254
transmembrane conductance regulator (CFTR) see	Glioma cancer, 64
also Transmembrane conductance regulator	Glossina, 223
(CFTR) gene	Glucal, 134, 135, 142
viral see also Viral	Glucanases, 383
virulent, 333	Glucocerebrosidase, 322, 323
virus see also Virus	Glucocorticoid, 192, 193
waxy, 285	receptor, 192
Wolbachia, 214, 223	Glucomannans, 337
wza, 176	Glucose oxidase, 409, 415
wzb, 176	Glucose, 55, 133, 137, 138, 176, 253
wzc, 176	oxidase see also Glucose oxidase
wzx, 176	tolerance test, 253
wzy, 176	Glucuronoarabinoxylan, 336, 340
xpt, 217, 225	Glutathione S-transferase, 386
β-glucuronidase, 333 δ-endotoxin, 219	Glyceraldehyde-3-phosphate dehydrogenase (GAPDH), 122
Genetic immunization, 101	Glycoconjugates, 133
Genome, 4, 22, 24, 77, 78, 80, 81, 83, 84, 86-88, 132,	cell-surface, 130
206, 211, 212, 246, 268, 284-289, 291, 295, 298,	Glycolipids, 166
299, 317, 319, 370, 382	biosurfactants see also Biosurfactants
analysis, 288	Glycoproteins, 334
bacterial, 204	Glycosaminoglycan, 141
chickpea see also Chickpea	Glycoside hydrolases, 129-133, 135, 143, 144
chloroplast see also Chloroplast	marine, 132, 133
eukaryotic see also Eukaryotic	Glycosidic bonds, 129-132, 140, 144
expression, 381, 383	synthesis of, 132
fungi see also Fungi	Glycosidic linkages, 129, 130-132, 141
genome-wide see also Genome-wide	Glycosidic,
haploid, 272	bonds see also Glycosidic bonds
mapping, 288, 298	linkage, 44, 129-133, 141
NCBI database, 132	Glycosyl enzyme, 131
nuclear, 318	Glycosyl hydrolases, 129, 130
organism see also Organism	Glycosylation, 129, 130, 316, 317, 320-322
organization, 283, 289	mammalian, 317, 322
pig see also Pig	N-linked, 369
plant see also Plant	protein, 320
projects, 132	Glycosyltransferases, 130, 131, 141, 322, 337, 369
rice also Rice	Glycosynthases, 131, 132
soybean, 289	Glycyl linkage, 65
swine see also Swine	Gold nanorods, 93-99, 101-103, 106, 107
symbionts, 205	antibody-conjugated, 107
Wolbachia see also Wolbachia	biocompatible, 103
Genome-wide, 81, 88	bioconiugated, 97, 98
analysis, 22	biodistribution of, 106
characterization, 77	CTAB-coated, 106
data, 80, 86	cytotoxicity of, 103, 104
knock-out experiments, 4	endocytosis of, 106
libraries, 42	fluorescence properties of, 98
proteomics, 78, 88	folate conjugated, 102
regulation, 77	heated, 103

mPEG-DTC-coated, 106	Herpes simplex virus thymidine kinase (HSV-TK)
modified, 101	promoter, 44
PEG-modified, 104	HESX homeobox 1 (Hesx 1), 151
PSS-coated, 97	Heterorhabditidae, 216
stealthy, 106	Heterozygote, 284
Gold-nickel nanorods, 100	Hexadecyltrimethylammonium bromide (CTAB), 103-106
Golgi apparatus, 369	hIgG, 98
Goosecoid, 151	Hirudin, 368
G-protein-coupled receptors, 43, 58	Histone deacetylase inhibitor, 154
Granulocytemacrophage colony-stimulating factor	HIV, 53,
(hGM-CSF), 371 Gray mold 280	replication, 143
Gray mold, 280 Gray flyorogant protein (GER) 42, 40, 50, 53, 55, 57	Homalodisca coagulata, 213 Homeobox, 151
Green fluorescent protein (GFP), 42, 49, 50, 53-55, 57, 58, 100, 120-122, 389	Homeostatic,
blue GFP see also Blue GFP (BFP)	mechanism, 189
gene, 49, 67	response, 6
labeling, 67	Homo sapiens, 140
mutants, 51, 53, 67	Homoarginine, 43
GroEL, 206, 224	Homoserine lactone, 170
Growth hormone, 255	Horseradish peroxidase, 409, 415, 416
human, 364	HuB, 87
GU rich element (GRE), 97	Human embryonic kidney mammalian cell line
Gut,	(HEK293), 100
tissue, 211	Human epidermal growth factor receptor (HER2) anti-HER2, 97
Haemin storage (hms) locus, 221	Human glioma Gli36 tumor cells, 46
Hamiltonella defensa, 212	Human papillomavirus (HPV), 323
Heart, 249, 252	Human somatotropin (hST), 323
disease, 43	Human,
failure, 53	diseases, 245, 250, 251, 255, 256
Heat Shock genes,	tissue see also Tissues
dnaJ, 175	Huntington's,
dnaK, 175	disease, 253
grpE, 175	gene, 252
HeLa cells, 53, 64, 82, 85, 101, 104, 105 Helicoverpa armigera, 281	Hyalophora cecropia, 219 Hybrid differential evolution, 28
Heliothis virescens, 225	Hydrocortisone, 190, 191
Helix pomatia, 140	Hydrophilic compounds, 130
Hematopoiesis, 194	Hydrophobin, 167, 177
Hematopoietic cells, 187, 188, 193, 194	Hydroxyaminobenzene mutase, 422
expansion of, 187	Hydroxycinnamic acid, 340
progenitor, 187, 188, 190, 191, 193, 196	Hydroxycinnamoyl transferase (HCT), 338
stem cells, 187-190, 196	Hymenoptera, 219
Hemicellulose, 336-338, 340-343	Hyoscyamus muticus, 370
biosynthesis, 340	Hyperacute rejection (HAR), 249
hydrolysis, 342	Hyperthermia, 101, 107
Hemicellulosic polysaccharides, 337	Hypoxia, 85, 387
Hemoglobin, 65, 95, 250	HZCX-HSV amplicon vector, 46
oxy-hemoglobin, 95	
Hemolin, 217	IFN-α, 322
Hemolymph, 211, 215, 216, 219, 222	IgG, 249, 324
Hemolysin, 216	IL-6, 252
Hemoxygenase-1, 250	Imidazolinone, 49
Hepatitis, 243, 252	Immulectin 2, 217
hepatitis B, 43	Immune deficiency pathway (Imd), 216
hepatitis C virus, 63 Hepatoblast, 152, 153	Immune response, 100, 203, 216, 217 activation of, 114
differentiation, 152	generation of, 118
proliferation, 153	systematic, 215, 221, 222
Hepatocyte growth factor (HGF), 153, 154	Immunoassay, 98
Hepatocyte nuclear factor 6 (HNF6), 152, 153	Immunogenicity, 197, 315, 321, 323, 324
Hepatocyte, 151-158, 254, 255	Immunogens, 316
phenotype, 149	Immunological networks, 26
transplantation of, 150	Immunomodulatory activity, 139
Herbicide, 347	In silico, 24
resistence, 334	knock-out experiments, 4
tolerence, 344, 351	reconstruction, 23

Indodyl, 44	Lemna minor, 322
Indoxyl, 44	Lentiviral vector, 253
Induced pluripotent stem (iPs), 196	Lepidoptera, 218, 219
Infective juvenile (IJ), 216, 226	Lepidopteran,
Inflammation, 252	larvae, 225
Inflammatory damage, 250	pests, 219, 227
Inflammatory diseases, 116,	Leucine zipper, 383
bowel, 117, 118	Leukemia,
Inflammatory markers, 252	cell line K562, 103
Inflammatory response, 97	Leukocytes, 189
macrophage see also Macrophage	antigen, 250
Infrared irradiation, 101	Lichenysin, 165, 167, 170, 178
Injection molding, 407	biosynthesis, 170
Innate immunity, 250	operon see also Operon
Insect-bacteria interactions, 222	synthetase see also Synthetase
Insulin, 190, 191, 315, 316, 320, 370, 371	synthesis, 170
Insulin-like growth factor I (IGF I), 255	Lignin, 332, 334, 336, 339-343, 347, 349, 351, 386
Insulin-like growth factor-II (IGF-II), 190, 191, 193, 194	biosynthesis, 337, 338-340 H-lignin, 339
Inter simple sequence repeats (ISSR), 284 markers, 284, 294	S-lignin, 339, 340
pimers, 294	Lignocellulose,
Intercellular adhesion molecular-1 (ICAM-1), 250, 252	hydrolysis, 342
Interferons, 370	Lignocellulosic,
Interleukin-2, 322	biomass, 332
Interleukin-3, 191	composition, 335
Internal ribosome entry site (IRES), 86	Linear, 10
Interspecific hybridization, 267, 270, 273, 275, 276	(log)linear see also (log)linear
Intestinal epithelium, 122	FBA models see also Flux Balance analysis (FBA)
Inulin, 130	models, 27
Invasin (Inv), 120, 121	non-linear see also Non-linear
Iron-sulphur cluster, 24	representations, 4, 10, 11
Isomaltose, 134, 135	stoichiometric models, 22, 23
Isozymes, 270, 272, 274, 283-286, 291	system, 27
comparison of, 267	Taylor series see also Taylor
genes see also Genes	Lin-log, 14, 20, 25
seed storage protein see also Seed storage protein	formalism, 2, 6, 7, 18
Iturin, 165, 167, 170, 171	models, 17, 30
inturin A, 170, 171	Linoleic acid, 191, 251
operon see also Operon	Lipase, 131, 216, 218, 367
	immobilized, 416, 422
Karyotypes, 196, 267, 271	Lipid metabolism, 252
Kidney, 106, 249, 250	Lipobox motif, 324
Kinetic properties,	Lipocalin 2, 189
enzymes, 28	Lipoheteropolysaccharide, 175
Kinetic,	Lipopeptides, 166, 167
description, 5	biosurfactants see also Biosurfactants
functions, 4, 5, 10, 11	Lipophilic compounds, 130
mechanisms, 8	Lipopolysaccharide (LPS), 217
models, 8	bacterial, 316
monitoring, 57 order, 8, 10, 17	Lipoproteins, 154, 166 bacterial, 324
properties see also Kinetic properties	metabolism, 246
representation, 1, 2, 4, 5, 8	very low density lipoproteins, 251
k-mer enumeration approach, 87	Liposomes, 113, 115-118
in mer enumeration approach, or	Lipoxygenase, 384
Lactococcus lactis, 118	Liriomyza cicerina, 281
metabolism, 24	Listeria monocytogenes, 120
Lactoferrin, 321	Listeriolysin O gene (HlyA), 121
Lactose, 130, 133, 141	Lithography, 407
Lactulose, 130	Liver cells, 153, 154
lacZ,	embryonic stem cells derived, 149
gene, 44, 46	proliferation, 153
Laser irradiation, 97, 101-103	stem cells derived, 150, 155. 158
L-carnitine,	transplantation, 157
production, 27	Liver diseases, 149, 150, 155, 158, 159
Leaf mine, 281	Liver, 106
Lecithin, 190	associated proteins, 154

cells see also Liver cells	Mannobiose, 140
disease see also Liver diseases	Mannose, 133, 175, 323, 337
pig see also Pig	receptors, 322
specific promoter, 254	Mannosylerythritol lipids (MEL), 167, 177
tissue engineering, 155	Mannosynthase, 140
Lokisin, 167, 178	MAOK, 55
L-rhamnose, 175	Mathematical models, 1-6, 12, 14, 17, 18, 20, 23, 24, 27,
Luciferase complementation imaging (LCI), 57, 60	29, 30
Luciferase, 55-58, 60, 100	Meiosis, 246, 270, 288
bacterial, 55	Melanin, 95
catalyzed reaction, 56	Melanoma, 252
firefly see also Firefly luciferase (Fluc)	Membrane cofactor protein (MCP), 249
luciferase complementation imaging see also	Membrane potential, 54
Luciferase complementation imaging (LCI)	sensor, 55
Renilla see also Renilla luciferase (Rluc)	Merrifield resin, 415
reporter gene, 57	Mesenchymal stem cells, 247
reporter system, 56, 57, 67	Mesenchymal stromal cells (MSC), 191
Luminescence, 96	Mesendoderm, 151
activity, 60	Mesoderm, 150
bioluminescence see also Bioluminescence	cardiac, 152
fluc-generated, 46	Mesophyll cells, 319
imaging, 57	multiplication, 390
photoluminescence see also Photoluminescence	Metabolic,
sequential reporter-enzyme see also Sequential	activity, 151, 154
reporter-enzyme luminescence (SRL)	diseases, 150
Lung,	disorders, 150
disease phenotype, 253	effects, 117
Lyme disease, 324	engineering, 4
Lymphocyte, 250	model, 23
Lysosomal enzyme, 364, 369	network, 23-25
alpha-L-iduronidase see also Alpha-L-iduronidase	pathways, 3, 23, 165
Magraphaga 24 100 101 240 222	processes, 4
Macrophage, 24, 190, 191, 249, 322 cells, 103	profiling, 155, 158
cell line, 103	systems, 6
inflammatory response, 24	target, 117 Metabolism,
Magnaporthe grisea, 383, 384, 386, 389	cell see also Cells
Magnetic resonance imaging (MRI), 48	cellular see also Cellular
Major histocompatibility (MHC), 197	drug see also Drug
Male gamete, 86	Lactococcus lactis see also Lactococcus lactis
Malonyl coenzyme A transacylase, 170, 171	purine see also Purine Metabolism
Maltoheptaose, 135	Saccharomyces cerevisiae see also Saccharomyces
Maltohexaose, 135	cerevisiae
Maltose, 55, 130, 135, 144	Metabolites, 3, 4, 6, 8, 10, 11, 12, 27, 165, 382
hydrolysis of, 134	kinetic orders of, 10
Maltotriose, 135	secondary, 177, 337, 369, 383
Mammalian,	Metabolomic, 3, 23, 29
carbohydrate structures, 322	methods, 29
cell culture, 50, 317	Metaphase I, 270
cell lines, 217	Metaphase II, 246
cell types, 67	Metastatic seeding, 51
cells, 43, 45, 50, 54, 63, 65, 67, 87, 114, 115, 124,	Methyl Jasmonate (MeJa), 384, 386
225, 251, 321, 322, 325	Methyl β-D-xylopyranoside, 142
CHO-cells see also CHO-cells	Methyl β-galactopyranoside, 142
enzymes, 62	Methylsilane, 416
glycan-structures, 322	Methyltrimethoxysilane, 415
glycosylation see also Glycosylation	Methymycin, 422
HEK 293 see also Human embryonic kidney	Mice, 57, 60, 65, 100, 101, 106, 117, 123, 153, 154, 156,
mammalian cell line (HEK293)	195, 246, 247, 252, 253
host, 220	C57/BL6, 122
isoenzymes, 43	immunodeficient, 190, 197
liver development, 151	immunogenic, 323, 324
protein, 320	knock-out, 85, 153, 156
signal peptide see also Signal peptide	nude, 60, 123
system, 119, 124	protective immunity, 324
tissue culture, 63	transgenic see also Transgenic mice
Manduca sexta, 218, 221, 226, 227	tumor-bearing, 118

Michaelis-Menten,	also Mouse ES cell-derived erythroid
enzyme kinetics, 5	progenitor (MEDEP)
process, 10	Fah-deficient, 156
Microarrays, 3, 81, 82, 85, 211	transgenic, 51
analysis, 221	mRNA, 42, 78-82, 85-87, 114, 298, 371
data analysis, 24	beta-catenin see also beta-catenin
gene expression see also Gene expression	expression, 48, 298
polysome see also Polysome microrray	OsPHO2, 391
probe assay, 99	processing, 42
Microbiome, 204 Microchannel reaction systems, 405, 406	stability, 85 synthesis, 85
Microdrilling, 407	Multiple expectation maximization for motif elicitation
Micromachining, 407	(MEME), 87
Microorganism, 132, 166, 167, 178, 204, 206, 218, 223,	Multiplex enzyme assay, 409
226	Multiplicity of infection, 121, 122
adhesion of, 203	Multipotent adult progenitor (MAP), 254
prokaryotic see also Prokaryotic	Mutagenesis, 51
Microreacotrs, 405, 406, 408, 417	chemical, 351
enzyme, 423	insertional, 118
enzyme immobilized, 417, 422, 423	random, 51
immobilized, 409	side-directed, 176
preparation of, 407	transposon, 174
Microreactors, 405-409, 415-417, 422, 423	Mutations, 50, 122, 206, 253, 292, 297
chip-type, 407, 408, 417	APC gene, 120
continuous-flow, 417, 422	cadherin, 227
enzyme, 407, 408, 417, 423	chromosomal structural, 274
lipase-entrapped, 423	deleterious, 206 deletion, 283
lipase-immobilized, 416, 422 monolytic, 415, 422	
protease-immobilized, 415	folding, 50 genetic, 196
stopped-flow, 408	inactivating, 45
trypsin-immobilized, 415, 416	insertion, 283
Y-shape, 422	knockout, 253
Microsatellite sequence, 284, 288	pbgE3 see also pbgE3
Mifepristone, 192, 193	phoP see also phoP
miRNA, 80, 114, 117, 396	point, 122, 273
Mitochondria, 95, 206	Pro347Leu see also Pro347Leu
Mitogenic activation, 82	Swedish see also Swedish mutation
Mitogens, 158	Mycetocytes, 205
Mitosis, 189	Mycetome, 205
Modeling, 2	Myeloma immunoglobulin, 141
mathematical see also Mathematical models	Myrmeleon bore, 225
metabolic processes, 4	Mytilus edulis, 132
molecular systems biology, 2	N
process, 5	N-acetylgalactosamine, 141
strategy, 23 Melogylor against a selection (MAS), 288, 201, 202	N-acetylglucosamine, 133, 141, 144 N-acylhomoserine lactones, 173
Molecular assisted selection (MAS), 288, 291, 292 Molecular markers, 267	N-acymomoserme factories, 173 Nanocages, 94
Monoclonal antibodies, 322	Nanorods, 93, 94, 96, 97, 100, 102, 104-106
anti-CXCR4, 97	aggregation of, 104
anti-HER2, 97	CTAB-coated, 106
Monolith, 415	Gold see also Gold nanorods
silica, 415	Gold-nickel see also Gold-nickel nanorods
trypsin-encapsulated, 415	modified, 104
Mononuclear cells, 252	PEG-coated, 104
Morbus Gaucher, 322	segmented, 100
Mouse cell line,	Nanoshells, 94, 95, 102
embryonic stem, 196	gold, 102
NIH-3T3, 80	Nanospheres, 94, 95, 97, 99, 103, 105
Mouse ES cell-derived erythroid progenitor (MEDEP),	citrate-stabilized, 105
cells, 195-197	Naringin, 135, 138
cell lines, 195, 196	glycosylation of, 138
Mouse, 46, 98, 196, 197, 246, 247, 253	Naural killer (NK) cells, 249
bone marrow see also Bone marrow	N-butanoyl-L-homoserine lactone (BHL), 173, 177
cell line see also Mouse cell line NIH-3T3, 80	N-butyryl-homoserine lactone, 173
embryonic stem cells, 152, 193, 195 ES cell-derived erythroid progenitor (MEDEP) see	Near infrared (NIR), 51, 60, 93, 94 spectroscopy, 65

Neisseria meningitides, 324	Obelia, 49
Nematodes, 203, 205, 213, 215, 226	Obesity, 251
entomopathogenic, 217, 226	Octadesylsilane, 407
filarial, 213	Octamer-4 (Oct4), 150
symbiotic, 216	Oil body (OB), 367
Neomethylmycin, 422	bioreactors see also Bioreactors
Neomycin phosphotransferase type II (nptII), 332	Oligoethyleneglycol, 102
Neoplastic processes, 51	Oligonucleotide fingerprinting, 286
Network, 4, 6, 7, 22, 23, 25	Omega-3 fatty acid desaturase, 251
behaviour of, 3	O-methyltransferase (COMT), 337
boolean, 14, 26	Oncogene, 120
description of, 4	k-Ras, 120, 122
designs, 26	Oncogenesis, 42
dimensions of, 5	Oncogenic drivers, 83
flux vector, 7	Oncostatin M, 154
for E. coli see also E. coli	O-nitrophenyl α-D-2-deoxy-N-acetyl glucopyranoside,
galactose biosynthesis pathway see also Galactose	141
biosynthesis pathway	O-nitrophenyl β-D-galactopyranoside (ONPG), 44, 143
genes see Genes	Oocyte, 213, 246
properties of, 5	cytoplasm see also Cytoplasm
purine metabolism see also Purine	transduction, 246
reaction of, 7, 14	Open reading frame (ORF), 169, 175
red blood cells see also Red blood cells (RBCs)	Operon,
signals, 53	arthrofactin, 172
structures, 2, 3, 5, 8, 24, 25, 26, 29	iturin, 172
topologies, 3	lichenysin, 170, 172
Neural cells, 150, 253	Optical microscopy, 96, 107
Neuronal cells, 254	Optoacoustic,
Neutrophils, 188	imaging, 97, 107
Newcastle Disease, 317	tomography, 97
N-hexadecane, 173, 176	Oral cancer,
	cell lines, 96
N-hexanoyl-L-homoserine lactone (HHL), 177	
Nicotiana attenuata, 372	Oral cavity, 124
Nicotiana tobacum, 371	Organism, 4, 6, 22, 29, 50, 64, 66, 80, 82, 103, 107, 116,
Nitrocefin, 62	130, 132, 165, 178, 204, 205, 211, 212, 215, 218,
Nitrophenyl, 130, 142	226, 315-317, 320, 321, 340, 343-347, 351, 381, 382
Glucoside see also Nitrophenyl glucoside	activity, 382
NMR,	ecology of, 25
spectra, 141	eukaryotic see also Eukaryotic
spectroscopy, 135, 137, 141	genome of, 4
Node equations, 12, 13	marine, 129, 132
Non-Cartesian space, 11	transgenic, 331, 343, 344, 349
Nonexpresser of pathogenesis related genes1 (NPR1),	Oropsylla montana, 220
382, 394	Orthodenticle homeobox 2 (Oxt2), 151
Non-human primate (NHP), 249	Orthophosphoric monoester phosphohydrolases, 43
Non-linear,	
	Oryza rufipogon, 276
functions, 29	Oryza sativa, 321, 381, 382
models, 23, 27, 28	Osteoblasts, 254
representation, 8	Outer surface protein A (OspA), 324
system, 6	Ovalbumin, 100, 101
Non-obese diabetic/severe combined immunodeficient	O-β-D-galactopyranosyl moiety, 141
mice (NOD/SCID mice), 190	
Non-ribosomal peptide synthetases (NRPSs), 165, 171,	PADAC, 62
172, 176, 177	Paenibacillus, 226
N-oxododecanoyl homoserine lacto, 173	Palmitic acid, 324
N-paraffin, 173	Panose, 134, 135
Nuclear protein,	Parasites, 204, 223
Id, 60	pathogenic, 103
myoD, 60	transmission, 211, 224
Nucleoside triphosphate diphosphohydrolase I	
1 1 1 1	Parasitoid wasp, 213
(NTPDase-I), 249	Paratransgenesis, 223
Nucleoside, 143, 14	Parkinson's disease, 150
Nucleotides, 142, 206, 284	Parthenogenesis, 213, 214
sequences, 114	Particle bombardment method, 100
Nucleus, 95, 100, 105, 319, 323, 333, 383	Pathogen, 166, 189, 205, 212, 213, 215, 220, 249,
plant, 333	278-280, 296, 297, 299, 324, 383, 384, 394

aggression, 383	Phenotypes, 4, 22, 23, 83, 84, 213, 214, 253, 297, 298,
animal, 364	335, 340-343, 346, 349, 390, 394
bacterial, 204, 212, 383	AB/RhD(-), 188
chickpea see also Chickpea	emulsan-defective, 176
fingerprinting, 296	epithelial see also Epithelial
fungal, 296, 383, 384	hepatocyte see also Hepatocyte
human, 218, 220, 228, 317	lung disease see also Lung
infection, 383	malignant, 196
insect, 218, 224	mutant, 285
microbial, 205	plant see also Plant
plant, 211, 225, 346, 383	RBC see also Red Blood cells (RBCs)
rice, 295	reproductive, 213
Pathological,	Phenylalanine ammonia-lyase, 384
conditions, 189	
	Phialidium, 49
processes, 57	phoP,
states, 4	mutation, 217
tissue, 95	Phorbol 12-myristate 13-acetate; (PMA), 85
Pathways, 1, 4, 6, 24, 30, 42, 80, 84, 165, 170, 423	Phosphate assimilation, 24
biological, 3, 57	Phosphate starvation genes (PSI), 391
developmental, 381	Phosphatidylcholine, 104
gene expression see also Gene expression	Phosphoenolpyruvate carboxylase (PEPC), 339
metabolic see also Metabolic	Phospholipase D, 221
modeling, 14	Phospholipase, 218, 221
physiological, 381	Phospholipid, 104, 166
reconstruction, 23, 26	Phospholipids membranes, 251
regulatory, 386	Phosphopantetheinyl transferase, 169
signal transduction see also Signal transduction	Photoacoustic tomography, 97
transporting, 366	Photodecomposition, 96
pbgE3,	Photodynamic therapy, 102
mutation, 217	Photolithography, 407
p-coumarate 3-hydroxylase, 337	Photoluminescence, 96
p-coumaric acid, 336-338	Photorhabdus luminescens, 215-218, 221, 224, 226
p-coumaroyl quinate, 338	Photorhabdus virulence cassettes (PVC), 217, 225
p-coumaroyl shikimate, 338	Photorhabdus, 215-218, 225, 226
Pecten maximus, 132	Photothermal thearapeutics, 93
Pectins, 336	Photothermal therapy, 102
Peptide synthetase, 169-172, 174, 177	<i>p</i> -hydroxybenzylideneimidazolinone, 49
multienzyme, 165, 167	p-hydroxyphenyl alcohol, 339
Peptide, 43, 54, 103, 167, 174, 222, 223, 320	Phylloplane, 218
antimicrobial see also Antimicrobial peptide (AMP)	Phytase, 255
bond, 174	Phytoalexins, 383
chain, 172	Phytochrome P450, 386
cyclization, 171	Pichia pastoris, 317
expression of, 227	Pieris brassicae, 225
extracellular, 170	Pieris rapae, 225
nanorod conjugate, 99	Pig, 245, 246, 253-255
non-ribosomal peptide synthetases see also Non-	cell, 249
ribosomal peptide synthetases (NRPSs)	chimeric, 254
pheromone, 170	eGFP expressing, 254
phosphorylation of, 54	eye, 251, 254
simian virus nuclear localisation sequence (NLS) see	genes, 250
also Simian virus	genome of, 246, 248
synthetase see also Peptide synthetase	hepatocytes, 254
transit see also Chloroplast	liver, 255
Peptidoglycan, 215, 217	lung, 253
Pericam, 55	mammary epithelial cells, 250
Perk, 85	miniature, 253
Peroxydase, 384	organ, 248, 250
Pesticides, 332	Ossabaw island, 253
Peyer's patches, 122	transgenic, 249, 250, 252, 254
Phage T7,	wild-type, 250
promoter, 176	zygotes, 253
Phagocytosis, 211, 215	PikC hydroxylase, 422
Pharmacokinetics, 315	Piromyces equi, 338
Phaseolus vulgaris, 320	Planar gamma camera imaging, 42
Phenolic acids, 336	Plant cell culture, 317
Phenoloxidase, 217, 218	Plant cells, 318, 319, 323, 363

bioreactors see also Bioreactors cell culture see also Plant cell untre cell wall see also Cell vall colls see also Plant cells disease see also Diseases genomes, 273 mormone, 383 mucleus pathogen see also Diseases phenotype, 446 tissue see also Pathogens phenotype, 446 tissue see also Si Tissues transgenic, 332-334, 339-341, 343-351 transplastorinic, 319 Plasmanate, 193 Plasmana	Plant manufactured pharmaceutical (PMP), 349 Plant.	Post-translational modifications, 169, 250, 286, 315, 316, 319, 320, 364, 366
cell wall see also Cell wall cells see also Plant cells genomes, 273 phormone, 383 macleus see also Diseases genomes, 273 phormone, 383 macleus see also Nucleus pathogen see also Pathogens phenotype, 446 tissue see also Diseases transgenic, 332-394, 339-341, 343-351 transplastomic, 319 Plasmanate, 193	bioreactors see also Bioreactors	
cells see also Plant cells disease see also Diseases genomes, 273 hormone, 383 mucleus see also Nucleus pathogens penotopy, 446 missue see also Nucleus pathogens phenotype, 446 missue see also Tissues transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmate, 193 Plasmate, 193 Plasmate, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 g-gal, 44 cryptic, 219 delivery of, 318 disease-censing, 215 pADAP, 215, 225 pADAP, 215, 225 pADAP, 215, 225 pATI, 221 pPK2013 pUBII 0, 171 pX01, 219 pX02, 219 pX02, 219 pX02, 219 pX02, 219 pX02, 219 pX02, 219 pX01, 219 pX02, 219 pX01, 219 pX1, 219 pX1	cell culture see also Plant cell culture	Post-translational,
disease see also Diseases genomes, 273 hormone, 383 mucleus see also Nucleus pathogen see also Pathogens phenotype, 446 tissue see also Tissues transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmarda, 90, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 Plasmarda, 193 Plasmarda, 193 Plasmarda, 193 Plasmid, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 Perportic, 219 Gelivery of, 318 disease-enusing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB10, 171 pX01, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid fRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl peclobioside, 134 p-nitrophenyl peclobioside, 135 Pollyatnas, 332 Polyothylmenylmaracytlate (PPMA), 407 Polydylmenylmaracytlate (PMMA), 407 Polydylmenylese, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 analysis, 82, 86 approach, 82, 85 Polysyrune, beads, 64 spheres, 95 Sudomate (PSS), 104 Polyumsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Postranserptional, 80, 170, 308 gens silencing see also Gene silencing regulation, 87, 88 modifications framework, 12 formalism, 2, 6-8, 11-13, 23, 25, 29, 30 Power-law, framework, 12 formalism, 2, 6-8, 11-13, 23, 25, 29, 30 Powerlaw, framework, 12 formalism, 2, 6-8, 11-13, 24, 25, 51 representation, 8, 11, 14, 23, 25 Seystem, 6 Prevacuolar compartment (PVC), 366 Provacuolar compartment (PVC), 369 Provacuolar compartment (PVC), 369 Prova	cell wall see also Cell wall	mechanisms, 393, 396
genomes, 273 hormone, 383 nucleus see also Nucleus pathogen see also Pathogens phenotype, 446 tissue see also Tissues transgenie, 323-334, 339-341, 343-351 transplastonic, 319 Plasmante, 193 Plasmante, 193 Plasmante, 193 Plasmids, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 pEv2013 pUB110, 171 pX01, 219 pX02, 219 pEv2013 pUB10, 171 pX01, 219 pX02, 219 pEtalet-derived growth factor receptor-a (PDGFRa), 151 Platelet-derived growth factor receptor-a (PDGFRa), 151 Polyenthylenyl glacoside, 134 p-nitrophenyl glacoside, 134 p-nitrophenyl glacoside, 135 Polyberphoper, 27 Polymerhyl-part (PMDR), 407 Polychyl-phenyl β-cellobioside, 135 Polyenthylenyl glacoside, 144 Polychyl-penyl glacoside, 149 Polychyl-penyl glacoside, 135 polysome microarray, 84 analysis, 82, 86 polysymene, beads, 64 spheres, 95 polysome microarray, 84 analysis, 82, 86 analysis, 82, 86 polysymene, beads, 64 spheres, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 spheres, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 spheres, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 spheres, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 spheres, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 sphere, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 sphere, 95 polysome microarray preparation, 81-3, 88 Polysymene, beads, 64 sphere, 94 polysome microarray preparation, 81		
nomone, 383 nucleus see also Nucleus pathogen see also Pathogens phenotype, 446 tissue see also Tissues transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmida, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pATTI, 221 pPK2013 pUB110, 171 pXO1, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid (TRIP) Plateletel, 188 aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl glalactopyranoside, 135 p-nitrophenyl glucoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNP), 47 Polydemdylylamithare, 134 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polydylendinimale, 104 Polydylylenimime, 104 Polydylylenimime, 104 Polydylylenimime, 104 Polydylylenimime, 104 Polydylylenimime, 104 Polydylylenimime, 104 Polyghosmide, 144 fractionation, 82, 86 analysis, 82, 86 approach, 82, 85 Polysyrnee, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyumsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 framicroarray see also polysome microarray preparation, 81-83, 88 Polysyrnee, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyumsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Fromatism, 2, 2-52, 81, 11, 14, 23, 25, 29, 30 GMA see also Generalized Mass Action model (GMA) models, 23, 25-28, 11, 11, 4, 23, 25 Prevacuolar comparition, 8, 11, 14, 23, 25 Prevacuolar comparition, 8, 11, 14, 23, 25 Provacuolar compa		
mucleus see also Nucleus pathogens ee also Tathogens phenotype, 446 tissue see also Tissues transgenic, 319 plasmante, 193 plasmante, 194 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUBI10, 171 pX01, 219 pX02, 219 p		· ·
pathogens ea also Pathogens phenotype, 446 tissue see also Tissues transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmidas, Do. 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pPK2013 pPK2013 pPK2013 pPK2013 pTSI 10, 171 pX01, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glaetopyranoside, 135 p-nitrophenyl placelobioside, 135 Pollutants, 332 Pollutants, 332 Pollutants, 332 Pollutants, 332 Pollutants, 332 Polyelyelneimine, 104 Polyelyelneimine, 104 Polyelyelneimine, 104 Polyelyelneimine, 104 Polyyelneimine, 104 Polyyelneimine, 104 Polyyelneimine, 104 Polyyelneimine, 104 Polyyelneimine, 108 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, factions, 84 fractionation, 81-83, 88 Polystynee, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 395 gene silencing see also Gener silencing regulation, 87, 88 GMA see also Generatized Mass Action model (GMA) models, 23, 25-28, representation, 8, 11, 14, 23, 25 S-system, 6 Prevacuolar compartment (PVC), 366 Privacuolar compartment (PVC), 366 Provacuolar compartment (PVC), 366 Provacuola		
phenotype, 446 tissue sea also Tissues transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmanate, 193 Promoter, 214 Porbayattion, 2, 11, 14, 23, 25 Provacuolar compartment (PVC), 366 Prions, 188 Porbaytrie, 2, 44 Prokay-11, 21 Prokay-10; 2, 14		
transgenic, 332-334, 339-341, 343-351 transplastomic, 319 Plasmids, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 g-delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl gladectopyranoside, 135 p-nitrophenyl gladectopyranoside, 135 p-nitrophenyl glacoside, 134 p-nitrophenyl glacoside, 134 p-nitrophenyl glacoside, 134 p-nitrophenyl glacoside, 135 Polydimethylsiloxane (PDMS), 407 Polydythylenimine, 104 Polydyelocosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymerthylmarthacrylate (PMMA), 407 Polyophyleneglycol, 104 Polyspome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrnee, beads, 64 sphrees, 95 system, 6 Prevacuolar compartment (PVC), 366 Prrosa, 188 Pro347Leu, mutation, 251 Progenitor cells, 254 Prokaryotic, DNA see also DNA microorganism, 203 Promoter, 42, 44, 56, 63, 154, 173, 247, 318-320, 342, 366, 328, 391, 393 activity, 43 adenovirus, 44 aleurone-specific, 366 cambidation, 369 CaMV35S, 319, 369 CaMV95SS, 319, 369 CaMV35SS, 319, 369 CaMV95SS, 31		
transglastomic, 319 Plasmaniate, 193 Plasmaniate, 193 Plasmids, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glacoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 47 Polyderhyleneilycol, 104 Polyethylenimine, 104 Polyethylenimine, 104 Polyethylenimine, 104 Polyethylenimine, 104 Polyethylenimine, 104 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrne, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyulasturated faity acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Prosaytoic, DNA see also DNA microorgamism, 203 Prolyl-4-hydroxylase (P4H), 320 Promoter, 42, 44, 56, 63, 154, 47, 56, 47, 56, 154, 47, 56, 3154, 47, 56	* ** *	
Plasminds, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 β-gal, 44 cryptic, 219 delivery of, 518 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glaucoside, 134 p-nitrophenyl plosphate (PNPP), 43 p-nitrophenyl phosphate (PNPS), 407 Polydyteleneilmine, 104 Polydyteleneilmine, 104 Polygheneilmine, 104 Polyghyleneilmine, 104		
Plasmida, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215, 219, 220 [P-gal, 44 cryptic, 219 delivery of, 518 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pFX2013 pUB110, 171 pX01, 219 pX02, 219		
219, 220 β-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pFX2013 pDB110, 171 pX01, 219 pX02, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl glucoside, 134 p-nitrophenyl glucoside, 134 p-nitrophenyl glucoside, 135 Polybrambinate, 407 Polybrytheneglycol, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polygrabonate, 407 Polypetpleinine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polysomome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyustraurated fatty acids (PUFAs), 251, 252 Polystronemission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Polystronemission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88	•	
B-gal, 44 cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Polytomen, 152 Ponitrophenyl placeside, 135 Politore,	Plasmids, 50, 62, 100, 101, 121, 165, 173, 174, 206, 215,	Prions, 188
cryptic, 219 delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 pX01, 219 pX02, 219 pX12, 219 pX02, 219	219, 220	Pro347Leu,
delivery of, 318 disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pPK2013 pUB110, 171 pX01, 219 pN202, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelete, 188 aggregation, 251 p-nitrophenyl glacoside, 135 p-nitrophenyl glacoside, 134 p-nitrophenyl plosphate (PNPP), 43 p-nitrophenyl plosphate (PNPP), 43 p-nitrophenyl plosphate (PNPP), 43 p-nitrophenyl plosphate, 407 Polydmfentylsiloxane (PDMS), 407 Polydtylenglyco, 104 Polygthylenglyco, 104 Polygthylmarthacrylate (PMMA), 407 Polygthylmarthacrylate (PMMA), 407 Polygthylmarthacrylate (PMMA), 407 Polyspethide, 272 receptor, 253 Polysiand gangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyusturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene sellencing see also Gene silencing regulation, 87, 88 Polystrone genilencing see also Gene silencing regulation, 87, 88	β-gal, 44	mutation, 251
disease-causing, 215 pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pXO1, 219 pXO2, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 P-nitrophenyl glacoside, 134 p-nitrophenyl glucoside, 134 p-nitrophenyl glucoside, 134 p-nitrophenyl glucoside, 134 p-nitrophenyl glucoside, 135 Pollyatmats, 332 Pollyatmats, 332 Pollydimethylsiloxane (PDMS), 407 Polyethyleminine, 104 Polyglucosides, 144 Polygreptide, 272 Polymethylmarthacrylate (PMMA), 407 Polyethyleminine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polysme microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractionas, 84 fractionastion, 84 fractionation, 84 fractionation, 84 fractionation, 84 fractionation, 84 fractionation, 84 fractionation, 84 protease, 85 Polystyrene, placed by the properties of		
pADAP, 215, 225 pMT1, 221 pPK2013 pUB110, 171 pX01, 219 pX02, 219 Tr-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 P-nitrophenyl glactopyranoside, 135 P-nitrophenyl placoside, 134 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl pl-cellobioside, 135 Pold bore, 281 Pollyarbonate, 407 Polydribrenglycol, 104 Polyghuseniae, 407 Polydrybreniae, 104 Polyghuseniae, 407 Polydrybreniae, 272 receptor, 253 Polysome, fractions, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polysupsulated fatty acids (PUFAs), 251, 252 Positton emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 microarray see also Gene silencing regulation, 87, 88 microarray see also Gene silencing regulation, 87, 88 microarray is microarray and microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polymaturated fatty acids (PUFAs), 251, 252 protease, 53, 55, 216, 219, 368, 371, 372 activity, 37 adenovirus, 44 aleurone-specific, 366 arabidopsis rd29A, 343 barley, 366 CaMV-35s, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) cytomegalovirus see also Cytomegalovirus (CMV) E-8, 319 expression level, 44 function, 56 genes ea see also Genes globl, 342 glutelin, 366 herpes simplex virus thymidine kinase ealso herpes simplex virus thymidine kinase (HSV-TK) Ins.2, 233 liver specific see also Liver Os/RO2, 393 Os/NACI, 389 phage T7 see also Phage T7 promoter-lactZ construct, 44 rept/L, 171 seed specific, 366 arabidopsis rd29A, 343 barley, 366 CaMV-35s, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) E-8, 319 expression level, 44 function, 56 genes ee also Genes globl, 342 glutelin, 366 herpes simplex virus thymidine kinase e		
pMT1, 221 pPK2013 pUB110, 171 pXO1, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl glucoside, 134 p-nitrophenyl plucoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 49 Polydimethylsiloxane (PDMS), 407 Polydymethylsiloxane (PDMS), 407 Polyethylenimine, 104 Polyethylenimine, 104 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysandgangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyusturated fatty acids (PUFAs), 251, 252 Positoro emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Protection and the proportion of the protein fusion, technology 58	<u>-</u>	
pPK2013 pUB110, 171 pXO1, 219 pXO2, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-I-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glacoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl β-cellobioside, 135 Pold borer, 281 Polydemichylationane (PDMS), 407 Polydimethylsiloxane (PDMS), 407 Polydemichylsiloxane (PDMS), 407 Polydemichylate (PMMA), 407 Polygethylenimine, 104 Polypethide, 272 receptor, 253 Polysialogangliosides, 132 Polysome, fractions, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Protistae, 53, 55, 216, 219, 368, 371, 372 activity, 37 cleaveg. adenovirus, 44 alaeurone-specific, 366 arabidopsis rd29A, 343 bartey, 366 CMV-β-actin see also Cytomegalovirus (CMV) E-8, 319 expression level, 44 function, 56 gene see also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase elso (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver Os/RO2, 393 Os/MCI, 389 Phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleaveses.		
pUB110, 171 pXO1, 219 pXO2, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelete, 188 aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl plucoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl plucoside, 135 Politorphenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 44 p-nitrophenyl phosphate (PNPP),	-	
pXO1, 219 pXO2, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glacoside, 135 p-nitrophenyl glacoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNP), 43 p-nitrophenyl plecoside, 135 Pol borer, 281 Pollutants, 332 Polycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polydethylenimine, 104 Polygethylenimine, 104 Polygethylenimine, 104 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymender, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 activity, 43 adenvorus, 44 aaleurone-specific, 366 arabidopsis rd29A, 343 barley, 366 CMV-β-actin see also Cytomegalovirus (CMV) cytomegalovirus see also Cytomegalovirus (CMV) expression level, 44 function, 56 gene see also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver OstRO2, 393 OstRAC1, 389 Phage T7 see also Phage T7 promoter-lactZ construct, 44 repul, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease—P, 415, 422 serine inhibitor see also Serine protease inhibitor		
pXO2, 219 Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 P-nitrophenyl glactopyranoside, 135 P-nitrophenyl glucoside, 134 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl B-cellobioside, 135 Pod borer, 281 Pollutants, 332 Pollutants, 332 Pollydimethylsiloxane (PDMS), 407 Polydimethylsiloxane (PDMS), 407 Polydimethylsiloxane (PDMS), 407 Polygulucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysione microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 adenovirus, 44 aleurone-specific, 366 arabiologist (29A, 343 barley, 366 CaMV35S, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) cytomegalovirus see also Cytomegalovirus (CMV) extomegalovirus elso Cytomegalovirus (CMV) extomegalovirus elso Cytomegalovirus	•	
Ti-plasmid, 318 TransKingdom RNAi plasmid see also TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 p-nitrophenyl glacoside, 135 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl β-cellobioside, 135 Pol borer, 281 Pollutants, 332 Pollycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polydimethyleneglycol, 104 Polygheneglycol, 104 Polygheneglycol, 104 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymenthylmarthacrylate (PMMA), 407 Polypertide, 272 receptor, 253 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 aleurone-specific, 366 arabidopsis rd29A, 343 barley, 366 CaMV35S, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) E-8, 319 expression level, 44 function, 56 gene see also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver OsIRO2, 393 O		
TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Plateletet, 188 aggregation, 251 P-nitrophenyl glactopyranoside, 135 P-nitrophenyl plasophate (PNPP), 43 P-nitrophenyl plosophate (PNPP), 43 P-nitrophenyl P-cellobioside, 135 Pod borer, 281 Pollutants, 332 Pollutants, 332 Pollydimethylsiloxane (PDMS), 407 Polydythylenimine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polyspethide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 anglysis, 82, 86 anglysis, 82, 86 particutions, 84 fractions, 84 fractions, 84 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyumsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 arabidopsis rd29A, 343 barley, 366 CMV-β-actin see also Cytomegalovirus (CMV) cytomegalovirus see also Cytomegalovirus (CMV) expression level, 44 function, 56 gene see also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver Os/RO2, 393 Os/RO2, 3		
TransKingdom RNAi plasmid (TRIP) Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 aggregation, 251 P-nitrophenyl galactopyranoside, 135 P-nitrophenyl plucoside, 134 P-nitrophenyl plucoside, 134 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl β-cellobioside, 135 Pol borer, 281 Pollutants, 332 Pollyarbonate, 407 Polydyimethylsiloxane (PDMS), 407 Polyethyleneglycol, 104 Polyethylenimine, 104 Polyethylenimine, 104 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Pollymenthylmarthacrylate (PMMA), 407 Polyspeptide, 272 receptor, 253 Polysialogangliosides, 132 Pollysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyumsturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 baragorgation, 251 CaMV35S, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) E-8, 319 CaMV35S, 319, 369 CMV-β-actin see also Cytomegalovirus (CMV) E-8, 319 cytony-actin see also Cytomegalovirus (CMV) E-8, 319 cytony-bed, 24 function, 56 gene see also Genes globl, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver Ostroacy, 393 OsNAC1, 389 phage T7 see also Phage T7 promoter-lacrizC construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		• *
Platelet-derived growth factor receptor-a (PDGFRa), 151 Platelets, 188 Platelets, 189 Pagregation, 251 P-nitrophenyl glacoside, 135 P-nitrophenyl glacoside, 134 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl phosphate (PNPP), 43 P-nitrophenyl p-cellobioside, 135 Pol borer, 281 Pollutants, 332 Polycarbonate, 407 Polycarbonate, 407 Polyethyleneglycol, 104 Polyglucosides, 144 Polymense chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polymasturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Genes also Cytomegalovirus (CMV) E-8, 319 expression level, 44 function, 56 gene see also Genes globl, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ims2, 253 Pols NACI, 389 Polysor Gene see also Liver OsIRO2, 393 OsNACI, 389 Phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 STV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease—P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		
aggregation, 251 p-nitrophenyl galactopyranoside, 135 p-nitrophenyl glucoside, 134 p-nitrophenyl β-ellobioside, 135 Polytarbonate, 407 Polyterbyleneglycol, 104 Polyethylenimine, 104 Polymentylmarthacrylate (PMMA), 407 Polypetide, 272 receptor, 253 Polysalogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystrene, beads, 64 spheres, 95 positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Genes quotation (PNP), 43 pexpression level, 44 function, 56 gene see also Genes glob1, 342 glottlin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver OsIRO2, 393 OsNAC1, 389 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		
p-nitrophenyl glactopyranoside, 135 p-nitrophenyl glucoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl p-cellobioside, 135 Pol borer, 281 Pollutants, 332 Pollycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polyethyleneglycol, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyumsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 E-8, 319 expression level, 44 function, 56 gene see also Genes glob1, 342 glutelin, 366 herps simplex virus thymidine kinase ealso herpes simplex virus thymidine kinase (HSV-TIK) IDS2, 393 inducible, 371 Ins2, 253 Ins2, 253 Ins2, 253 Ins2, 253 OsNACI, 389 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Liver OsIRO2, 393 OsNACI, 389 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58	Platelets, 188	CMV-β-actin see also Cytomegalovirus (CMV)
p-nitrophenyl glucoside, 134 p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl p-cellobioside, 135 p-nitrophenyl p-cellobioside, 135 pol borer, 281 pollutants, 332 polycarbonate, 407 polydimethylsiloxane (PDMS), 407 polyethyleneglycol, 104 polyethyleneglycol, 104 polyethylenimine, 104 polymethylmarthacrylate (PMMA), 407 polymethylmarthacrylate (PMMA), 407 polypeptide, 272 receptor, 253 polysialogangliosides, 132 polysome microarray, 84 analysis, 82, 86 approach, 82, 85 polysome, fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 polysialogangliosides, 95 sulfonate (PSS), 104 polyumsturated fatty acids (PUFAs), 251, 252 positron emission tomography (PET), 42 post-transcriptional, 80, 170, 396 gene see also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also he	aggregation, 251	cytomegalovirus see also Cytomegalovirus (CMV)
p-nitrophenyl phosphate (PNPP), 43 p-nitrophenyl β-cellobioside, 135 p-nitrophenyl β-cellobioside, 132 polycarbonate, 407 polygenbonate, 407 polygenbonate, 407 polygenbonate, 407 polygelycosides, 144 polymerase chain reaction (PCR), 205, 214, 283, 294, 372 polymethylmarthacrylate (PMMA), 407 polypeptide, 272 receptor, 253 polysialogangliosides, 132 polysome microarray, 84 analysis, 82, 86 approach, 82, 85 polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 polyunsaturated fatty acids (PUFAs), 251, 252 positron emission tomography (PET), 42 post-transcriptional, 80, 170, 396 gene sien also Genes glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also herpes simplex virus thymidin		
p-nitrophenyl β-cellobioside, 135gene see also GenesPod borer, 281glottli, 342Pollutants, 332glutelin, 366Polycarbonate, 407herpes simplex virus thymidine kinase see alsoPolydimethylsiloxane (PDMS), 407herpes simplex virus thymidine kinasePolyethyleneglycol, 104IDS2, 393Polygucosides, 144IDS2, 393Polymethylmarthacrylate (PMMA), 407liver specific see also LiverPolymethylmarthacrylate (PMMA), 407OsIRO2, 393Polyspeptide, 272OsIRO2, 393receptor, 253OsNAC1, 389Polysome microarray, 84phage T7 see also Phage T7analysis, 82, 86phage T7 see also Phage T7approach, 82, 85sequence, 42, 383Polysome,sequence, 42, 383fractions, 84stress inducible, 389, 395fractions, 84stress inducible, 389, 395fractionation, 82SV40, 44proparation, 81-83, 88Prophylactic vaccines, 316Prostate cancer, 57, 252Polystyrene,Protate cancer, 57, 252beads, 64protease, 53, 55, 216, 219, 368, 371, 372sepheres, 95sulfonate (PSS), 104Polyunsaturated fatty acids (PUFAs), 251, 252protease, 53, 55, 216, 219, 368, 371, 372post-transcriptional, 80, 170, 396immobilized microreactor, 415gene silencing see also Gene silencingrotterin fusion,regulation, 87, 88rechnology 58		
Pod borer, 281 Pollutants, 332 Polycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polyethyleneglycol, 104 Polyethyleneglycol, 104 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 glob1, 342 glutelin, 366 herpes simplex virus thymidine kinase see also HESV-TK) IDS2, 393 inducible, 371 Ins2, 253 OsNACI, 389 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, regulation, 87, 88		
Pollutants, 332 Polycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polyethyleneglycol, 104 Polyethylenimine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 ployethyleneglycol, 104 IDS2, 393 herpes simplex virus thymidine kinase see also herpes siplex rius hymides space also Play 102		
Polycarbonate, 407 Polydimethylsiloxane (PDMS), 407 Polyethyleneiglycol, 104 Polyethylenimine, 104 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Pilystypic indicate the protein fusion, technology 58 Portage simplex virus thymidine kinase herpes simplex virus thymidine kinase herpes simplex virus thymidine kinase (HSV-TK) herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 Iver specific see also Liver OsIRO2, 393 OsNACI, 389 Page T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		=
Polydimethylsiloxane (PDMS), 407 Polyethyleneglycol, 104 Polyethyleneglycol, 104 Polyethylenimine, 104 Polygucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysone microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 herpes simplex virus thymidine kinase (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 liver specific see also Liver OsRO2, 393 OsNACI, 389 PolsaCiver OsRO2, 393 OsNACI, 389 Polysacy See also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		
Polyethyleneglycol, 104 Polyethylenimine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 (HSV-TK) IDS2, 393 inducible, 371 Ins2, 253 Ins2, 254 Ins2, 254 Ins2, 255 Ins2, 254 Ins2, 254 Ins2, 254 Ins2, 254 Ins2, 254 Ins2, 254 Ins2, 255 Ins2, 255 Ins2, 254 Ins2, 255 Ins2, 2		
Polyethylenimine, 104 Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 inducible, 371 Ins2, 253		
Polyglucosides, 144 Polymerase chain reaction (PCR), 205, 214, 283, 294, 372 Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 inducible, 371 Ins2, 253 Iver specific see also Liver OsIRO2, 393 OsNACI, 389 Phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sed specific see also Seeds sed specific see also Seeds seq specific see also Seeds seq specific see also Seeds seq specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds seq specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds seq specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds seq specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 44 repU, 171 seed specific see also Flage Promoter-lactZ construct, 49 repU, 171 seed specific see also Flage Promoter-lactZ construct, 49 repU, 171 seed sp		
Polymethylmarthacrylate (PMMA), 407 Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysialogangliosides, 132 Polysome microarray, 84		
Polypeptide, 272 receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Polystyre, Protease, 37, 252 Posteron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 plage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58	Polymerase chain reaction (PCR), 205, 214, 283, 294, 372	Ins2, 253
receptor, 253 Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 recupt. 78 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed slos Peads sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88	Polymethylmarthacrylate (PMMA), 407	liver specific see also Liver
Polysialogangliosides, 132 Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 protease-P, 415, 422 protease-P, 415, 422 protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 phage T7 see also Phage T7 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 protease-P, 415, 422 protease-P, 415, 422 protease inhibitor gene silencing see also Gene silencing regulation, 87, 88	Polypeptide, 272	OsIRO2, 393
Polysome microarray, 84 analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, Polystyrene, Polystyrene, Polystyrene, Polystyrene, Postroads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 promoter-lactZ construct, 44 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 repul, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 inhibitor vaccines, 316 Prostate cancer, 57, 252 inhibitor, 362 protease-P, 415, 422 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88		
analysis, 82, 86 approach, 82, 85 Polysome, fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 repU, 171 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88		
approach, 82, 85 Polysome, fractions, 84 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 seed specific see also Seeds sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor	ž	- · · · · · · · · · · · · · · · · · · ·
Polysome, fractions, 84 fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 sequence, 42, 383 stress inducible, 389, 395 SV40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor		
fractions, 84 fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 sv40, 44 Prophylactic vaccines, 316 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 technology 58		•
fractionation, 82 microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, Protein fusion, Protein fusion, Protein fusion, Protein fusion, technology 58		
microarray see also Polysome microarray preparation, 81-83, 88 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor		
preparation, 81-83, 88 Prostate cancer, 57, 252 Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Prostate cancer, 57, 252 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor		
Polystyrene, beads, 64 spheres, 95 sulfonate (PSS), 104 Polyunsaturated fatty acids (PUFAs), 251, 252 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 Protease, 53, 55, 216, 219, 368, 371, 372 activity, 371 cleavage, 372 immobilized microreactor, 415 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		
beads, 64 activity, 371 cleavage, 372 sulfonate (PSS), 104 immobilized microreactor, 415 Polyunsaturated fatty acids (PUFAs), 251, 252 inhibitor, 364 Positron emission tomography (PET), 42 protease-P, 415, 422 Post-transcriptional, 80, 170, 396 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 rechnology 58	1 1 / /	
sulfonate (PSS), 104 immobilized microreactor, 415 Polyunsaturated fatty acids (PUFAs), 251, 252 inhibitor, 364 Positron emission tomography (PET), 42 protease-P, 415, 422 Post-transcriptional, 80, 170, 396 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing regulation, 87, 88 retending technology 58	beads, 64	
Polyunsaturated fatty acids (PUFAs), 251, 252 Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 regulation, 87, 88 inhibitor, 364 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58	spheres, 95	cleavage, 372
Positron emission tomography (PET), 42 Post-transcriptional, 80, 170, 396 gene silencing see also Gene silencing regulation, 87, 88 protease-P, 415, 422 serine inhibitor see also Serine protease inhibitor Protein fusion, technology 58		
Post-transcriptional, 80, 170, 396 serine inhibitor see also Serine protease inhibitor gene silencing see also Gene silencing Protein fusion, regulation, 87, 88 technology 58	2 \ // /	
gene silencing see also Gene silencing Protein fusion, regulation, 87, 88 technology 58		
regulation, 87, 88 technology 58	1 , , , ,	
		technology 38

Protein kinase R (PKR), 119	identification, 416
Protein storage vacuoles, 364, 366, 367	immune inhibitor, 219
Proteinases, 281	inhibitors, 281
Protein-protein interactions, 42, 45, 56-58	insecticidal, 226
detection of, 60	interactions, 63
drug-mediated, 60	kinases, 85
imaging, 53	liver-associated see also Liver
Proteins, 4, 23, 24, 42-45, 49, 50, 54, 55, 58, 60, 67,	loci, 283
77-80, 84, 85, 87, 88, 98, 100, 114, 123, 132, 133,	luminescent, 57
140, 141, 154, 170-172, 174-177, 206, 211, 214,	lysosomal, 369
216, 220, 221, 253, 254, 256, 268, 281, 298, 316,	mammalian see also Mammalian
317, 319-324, 333-337, 341-342, 346, 349, 350,	maturation of, 225
364, 366-368, 370-372, 382, 383, 394, 417	membrane cofactor see also Membrane cofactor
accumulation, 371	protein (MCP)
β -galactosidse see also β -galactosidse	membrane, 214
activin binding see also Activin	microbial recognition, 217
aggregation, 49	modification, 366
AlnA see also AnlA	Mtx, 220
alpha-tonoplast intrinsic protein see also Alpha-	multi-protein complex, 114
tonoplast intrinsic protein (TIP)	NPR1 see also Nonexpresser of pathogenesis related
amino terminus of, 324	genes1 (NPR1)
bacterial, 323	
	nuclear see also Nuclear protein
bioluminescent, 55, 60	outer surface protein A see also Outer surface protein
bone marrow see also Bone marrow proteins (BMPs)	A (OspA)
Bt see also Bacillus thuringiensis toxins (BT)	palmitoylated, 324
capsid protein L1see also Capsid protein L1	pathogenesis related, 384
cellular, 113, 114	pesticidal, 346
chaperone crystal protein see also Chaperone crystal	polysaccharide complex, 176
protein	posttranslational modification of, 315
chimeric, 45	probenazole inducible, 384
cholera toxin B-subunit see also Cholera toxin B-	1
	production, 114, 154, 367, 372
subunit	protein C, 250
CIS/SOCS family, 189	protein interactions see also Protein-protein
coagulator, 58	interactions
compartmentation, 363, 364	protein-rich cereal crops, 365
conformation, 176	Puf see also Puf proteins
Cry1A, 227	purification, 369
cyan fluorescent protein see also Cyan fluorescent	quantification, 78
protein	rapamycin-binding, 61
•	
degradation, 371	receptor, 42
dehydratation-responsive element-binding see also	recombinant see also Recombinant protein
Dehydratation-Responsive element-Binding	red fluorescent protein see also Red fluorescent
protein (DREB1)	protein (RFP)
digested fragments, 415	regulatory, 394
electrophoretic profile, 272	RhlB see also RhlB
element-binding, 87	RhII see also RhII
enhanced green fluorescent protein see also	RhIR see also RhIR
Enhanced green fluorescent protein	seed storage see also Seed storage protein
erythropoietin see also Erythropoietin	serum albumin protein see also Serum albumin
2 2 2	-
expression of, 80, 370	protein
extraction buffers, 371	serum, 105
FAT-1 see also FAT-1 protein	stability, 78, 79, 366, 370, 371
Fe(II) transporter, 393	storage vacuoles see also Protein storage vacuoles
fluorescent, 50, 51, 53, 54, 60, 67, 254	subcellular localization, 42
folding, 49	synthesis, 79, 80, 364
function of, 315	temperature induced, 389
fused, 67	therapeutics, 315-317, 319-323, 325
fusion see also Fusion protein	total soluble see also Total soluble protein
GATA binding see also GATA	•
E	transporter, 150
glycosylation, 320, 322	tyrosine kinase, 175
green fluorescent protein see also Green fluorescent	tyrosine phosphates, 175
protein (GFP)	variants, 283
hepatic, 255	vegetative insecticidal proteins see also Vegetative
heterogeneous, 137	insecticidal proteins (Vip)
his-tagged, 422	xenogenic, 255
histidine protein kinase, 170	yellow fluorescent protein see also Yellow
hydrophobic, 367	fluorescent protein (YFP)
nythophotic, 507	nuorescent protein (TFF)

Proteoglycan, 141	Red blood cells (RBCs), 23, 188
Proteome, 78	compartment, 189
Proteomics, 3, 29, 228	phenotype, 188
analysis, 415	production, 189-191, 193
Proteus mirabilis, 225	regulation of, 189
Protozoa, 203, 220, 223	transfusable, 187
Pseudoalteromonas, 132	transfusion, 188, 189
Pseudogenes, 211	Red fluorescent protein (RFP), 51
Pseudomonas aeruginosa, 167, 173	mRFP, 51
Pseudomonas entomophila, 215, 216, 221, 225, 226	Reduced epidermal fluorescence (ref), 337
Pseudomonas fluorescens, 172, 174	Refractive index, 99
Pseudomonas putida, 172, 175	Regulatory signal, 2
Pseudomonas species, 132, 165-167, 172, 174, 215	Reniformis luciferase, 60
Pseudomonas syringae, 174, 225, 226, 383	Renilla luciferase (Rluc), 55, 58, 60
Pst1, 233	hRluc, 60
Puf proteins, 87	Renilla, 49
1	
Puf3, 87	Replication, 246, 284
Puf4, 87	DNA see also DNA
Puf5, 87	viral see also Viral
Pullulan, 134	Reporter genes, 41-43, 49, 51, 56, 62, 67
Purine,	activities, 41
metabolism, 4	alkaline phosphotase see also Alkaline phosphotase
metabolism network, 23	(AP)
Putisolvin, 166, 167, 172, 175	assay, 41
I, 175	expression, 48, 154
II, 175	green fluorescent protein see also Green fluorescent
biosynthesis, 175	protein (GFP)
synthetase see also Synthetase	lacZ see also lacZ
Pyridoxine, 135, 144	luciferase see also Luciferase
glycosylation of, 137	methodology, 67
Pyrococcus furiosus, 132	technology, 67
Pyrococcus species, 140	Resorufin, 64
Pyruvate decarboxylase, 387	Retina, 254
	Retinitis pigmentosa, 251
Quantitative trait loci (QLT), 276, 288, 292, 295, 296,	Retinoblastoma gene, 191
298, 299	Retinoic acid inducible gene I (RIG-I), 119
eQLT, 298	Retrovirus, 246
mapping, 292	Reverse transcription, 214
Quantum dots (QDs), 50, 60, 96	RFP see also Red fluorescent protein (RFP)
Quorum sensing, 165, 167, 170, 173, 175, 177	Rhamnolipid, 167, 172, 173
(biosynthesis, 173
Radiation, 84	synthesis pathway, 172
Radioisotopes, 43	Rhamnosyltransferase 1, 173
Radiolabeled probes, 42	Rh-D antigen, 193, 197
Radionuclide imaging techniques, 42	Rhizoctonia solani, 383
Raman signals, 99	RhlB, 173
Raman spectroscopy, 96	RhII, 173
Raman-based intracellular, 99	RhIR,
Randomly amplified polymorphic DNA (RAPD), 273,	regulator protein, 173
274, 283, 289, 297	Rhodnius prolixus, 223
Makers, 273, 283-287, 292, 294, 297	Rhodococcus rhodnii, 223
polymorphism, 283, 286, 292	Ribosome recruitment, 77, 79, 80, 83-88 regulation of, 83, 84
Rapamycin, 60 RBC see also Red Blood cells (RBCs)	Ribosome, 79, 81, 82, 87
	recruitment see also Ribosome recruitment
Reactors,	subunits, 87
micro-enzyme, 417, 423	Ribozyme,
microreacotrs see also Microreactors	
Recombinant DNA technology, 316	splicing activity, 63
Recombinant inbred lines (RILs), 288, 295, 296	variants, 62
Recombinant protein, 315-321, 324, 342, 347, 348,	Ribulose 1,5-bisphosphate carboxylase, 372
363-373	Rice seedlings,
Recombination, 276, 288, 289, 292, 296, 298, 319, 370	transcriptome, 384
Cry proteins, 227	Rice,
degradation, 372	genes, 382, 393, 395
events, 42, 296	genome, 382
homologous, 247	seedlings see also Rice seedlings
proteins, 315-320, 324, 363-372	transcriptome, 389

Rickettsia prowazekii, 206	Sex determining region-Y box 17 (Sox17a/b), 151
Rickettsia, 214	shRNA, 114, 115, 117-121, 124
RNA polymerase II, 382	Sialic acid, 194, 322
RNA, 78, 80-83, 85, 86, 116, 322, 386	Signal peptidase II, 324
degradation, 396	Signal peptide, 170, 324, 341, 369
double stranded RNA see also dsRNA	mammalian, 320
elements, 87	N-terminal, 320, 324
micro-RNA see also miRNA	Signal transduction, 1, 41, 66
mRNA see also mRNA	pathways, 23, 390
polysome, 86	network, 25
RNAi see also RNAi	Simian virus,
short hairpin RNA see also shRNA	nuclear localisation sequence (NLS) peptide, 99
short interfering RNA see also siRNA	Simple sequence repeats (SSR), 283-286, 289, 298, 299 markers, 285, 288, 294-296, 298
silencing, 113, 116, 117, 124	Simulation, 2
splicing, 78 stability, 78, 87	
transport, 78, 79, 87	numerical, 7, 409 Sinapaldehyde, 340
RNAi, 113, 114, 116-118, 120, 123, 353	Sinapic acid, 337, 338, 340
	Sinapyl alcohol, 339
bacterial, 122	**
bacteria-based, 114, 115	Single nucleotide polymorphisms (SNPs), 283-285, 299
bacteria-mediated, 122, 124	Single photon emitted computed tomography (SPECT), 42
therapeutics, 114, 115, 117, 118	
virally-expressed, 118	Single-phase kinetics, 45
RNA-induced silencing complex (RISC), 114	siRNA, 113-120, 250
Roundworms, 220	Sitophilus oryzae, 211, 212
rRNA, 274	Sitophilus zeamais, 211
G 1 24 02 217	Sodalis glossinidius, 211, 223
Saccharomyces cerevisiae, 24, 82, 317	Sodalis, 211
metabolism, 23	Sodium selenite, 191
Saccharose, 134	Solanum americanum, 372
Salicylic acid, 383	Somatic cell nuclear transfer (SCNT), 252
Salmonella typhimurium, 334	Somatic cells, 99, 247
Salmonella, 217	modified, 247
Saturable and Cooperativity (SC) representation, 11	nuclear transfer, 252
Saturating and Cooperative (SC) formalism, 12, 13, 14,	Somatotropin, 370
20, 25, 27, 30	Southern hybridization, 287
Scattering coefficients, 95	Spectrophotometric assay, 43
Schizonella melanogramma, 177	Sperm mediated gene transfer (SMGT), 246
Secreted alkaline phosphatase (SEAP), 43	Spermatogenesis, 86
Sedoheptulose-1,7-bisphosphatase, 339	Sperm-mediated gene transfer (SMGT), 246
Seed storage protein, 270, 272	Sphyngolipids, 3
isozyme, 274	Spiroplasma, 214
patterns, 273	Spleen, 106
profiles, 272, 273	Spodoptera littoralis, 212
Seeds,	srf transcription, 170
specific promoter, 366	S-system, 14, 20, 23, 27
storage protein see also Seed storage protein	Models, 28, 29
Septum transversum mesenchyme, 153	power-law representation see also Power-law
Sequence tagged microsatellite sequence (STMS), 289	representation, 6, 25
markers, 284, 295	Stabilized nucleic acid lipid particle (SNALP), 117
Sequential reporter-enzyme luminescence (SRL), 46	Stage-Specific embryonic antigen-4 (SSEA-4), 150
Serial analysis of gene expression (SCAR),	Starch, 134, 333, 334, 342
markers, 285, 292, 297	hydrolysis, 322, 342
Serine protease inhibitor, 372	Steady-state, 8, 18, 25
Serratia entomophila, 225	analytical, 14
Serratia liquefaciens, 176, 177	behaviour, 6
Serratia marcescens, 176, 177, 215, 225	equations, 27
Serratia proteamaculans, 215, 225	fluxes, 7
Serratia rubidaea, 177	nominal, 18
Serratia, 176, 215	parameter, 6
Serrawettin, 167, 176	properties, 25
biosynthesis, 176	solution, 6, 14
synthatase gene see also Genes	stability, 6
W1, 176	system, 7
W2, 176, 177	values, 6, 13, 17
W3, 176	Steinernematidae, 216
Serum albumin protein, 371	Stem cell factor (SCF), 190-192

Stem cells, 149, 150, 247	Thermobifida fusca, 140
cell lines, 247	Thermomonospora fusca, 341
clinical therapies, 149	Thermotherapy, 101
derived hepatocyte, 149, 150, 154, 155, 157, 158	Thermotoga neapolitana, 140
differentiation, 151, 152	Thioalkyl-triazole, 99
donor, 247	Thiol, 324
embryonic see also Embryonic stem (ES) cells	groups, 95
factor see also Stem cell factor (SCF)	Thiolation, 170,
integrity, 157	domains, 172, 174, 177
liver cells see also Liver cells	Thiol-terminated methoxy-poly(ethylene glycol), 104
technology, 158	Thiophenol. 65
transplant, 157	Thrombopoietin (TPO), 190
Stilbene (ST), 218	Thrombosis, 249, 250, 252, 368
Stoichiometric matrix, 7, 14	Thylakoid lumen. 323
analysis, 14	Thymidine, 143
Stoichiometry, 7	Tissue culture, 44, 62, 120, 316, 317
Streptavidin, 99	techniques, 282, 283
alkaline phosphatase see also Alkaline phosphatase	Tissue factor pathway inhibitor (TFPI), 249
enzymes see also Enzymes	Tissues, 56, 60, 82, 95-97, 102, 104, 116, 205, 211,
Streptococcus sp., 324	213, 216, 249, 251, 252, 256, 319, 371, 387, 429,
Strongylocentrotus purpuratus, 132	431, 432, 434, 435, 437, 438, 440
Sucrose, 130, 135, 137	adipose, 155
density gradient, 81	animal, 316
glucosyl, 137	cells see also Cells
Sulcia muelleri, 213	connective, 141, 225
Surface plasmon, 93	culture see also Tissue culture
Surfactin, 165, 167, 169, 170	engineering, 158
bioynthesis, 167, 169	factor pathway inhibitor see also Tissue factor
synthetase see also Synthetase	pathway inhibitor (TFPI)
Swedish mutation, 254	farming, 429
Swine leukocyte antigen (SLA), 250	gut see also Gut
Swine, 246, 247, 251	hepatic, 149, 158
genome, 246	human, 94, 191, 316, 429, 431, 435, 441, 442
Symbionts, 204-206, 211, 212, 214, 222-224	insect, 216
genome see also Genome	irradiation of, 97
secondary, 205, 211-213	liver tissue engineering see also Liver
Synechococcus, 24	localization, 213
Synthetase,	pancreas, 316
arthrofactin, 174	pathological see also Pathological
lichenysin, 170	penetration, 65
putisolvin, 175	plant, 369
surfactin, 165, 169, 170, 172	reproductive, 57, 211
T7 DNIA 1 110 121	salivary gland, 211
T7 RNA polymerase, 118, 121	scattering of light, 95
Tabanus, 218	storage, 430, 432-434
Tachyzoites, 103	visualization, 95
Tapeworms, 220	window, 97
Taylor,	Tissue-specific toxin, 227
formalism, 7	Tobacco mosaic virus (TMV), 319
method, 7	Total soluble protein, 319, 323, 324
series, 4, 7, 8, 10-13	Toxicity, 62, 94, 99, 124, 158, 215, 217, 219-221,
theorem, 2	225-227, 346, 349
T-cells, 250	drugs, 155
response, 100, 101	Toxin complex (TC), 217, 221, 225, 226
Telomerase,	Toxins, 212, 214-217, 219-222, 225-227
activity, 150	anthrax, 219
Telomere repeats, 195	apoptotic, 217
Tensin, 167, 178	binary, 219, 220, 225
Tetanus toxin, 323	crystal see also Crystal toxin (Cry)
Tetraethoxysilane, 415	cytolytic see also Cytolytic toxin (Cyt)
Tetramethoxysilane, 415	cytotoxin see also Cytotoxin
Therapeutic gene,	insecticidal, 204, 219, 221, 224, 225 227
silencing, 116	mosquitocidal, 220
Therapy,	Mtx, 219
cell, 154 enzyme replacement see also Enzyme replacement	murine, 220
therapy	SepABC, 225 tissue-specific see also Tissue-specific toxin
gene see also Gene therapy	ussue-specific see also Tissue-specific toxin
gene see also delle therapy	

Toxoplasma gondii, 103	efficiency, 78, 79
Transcript, 78, 79, 81-83, 86, 87, 298	elongation, 77
location of, 298	initiation, 79, 86
specific regulation, 77	post-translational see also Post-translational
stability, 78, 87	regulation of, 77, 79, 80, 83, 84
synthesis, 78	repression, 83, 114
Transcription factors (TFs), 24, 79, 151, 152, 155, 335,	termination, 77
381-383, 389, 390, 393-396	Transmannosylation, 130, 141
ATF3, 24	Transmembrane conductance regulator (CFTR) gene, 253
Foxm1b, 153	Transmission electron microscopy, 100 Transposable elements, 223
NRF2, 24 Pit-1, 53	Trehalose, 3, 134, 135
Xbp1, 153	Triacylglycerol, 251
Transcription, 42, 64, 78-80, 82, 84-86, 174, 216, 297,	Trichoderma reesei, 177, 340
370, 382	Trinucleotide repeat, 253
downstream of, 80	Trypanosoma brucei, 211, 223
genes see also Genes	Trypanosoma cruzi, 223
factors see also Transcription factors	Trypanosomes, 211
machinery, 116	Trypsin, 53, 372
Myb, 390	catalyzed hydrolysis, 408
post-transcription, 80, 86	immobilized microreactors see also Microreactors
profiles, 77	inhibitor, 371
regulation of, 78, 79	Tryptophan, 206, 212
reverse see also Reverse transcription	production, 27
srf see also srf transcription	Tumor growth factor beta (TGFB), 152, 153
Transcriptional,	Tumor necrosis factor-∞ (TNF-∞), 189, 199, 250, 252,
activity, 42, 57	322
analysis, 78	Tumor necrosis factor-alpha-related apoptosis-inducing ligand (TRAIL), 250
changes, 85 cofactor, 383	Tumor, 65, 97, 102, 117, 118, 122
factors see Transcription factors	banking, 431
level, 83, 84, 396	cancerous, 431
machinery, 152	cell lines, 102, 158
post-transcriptional see also Post-transcriptional	cells, 52, 56, 101, 117, 218
processes, 78	development, 117
profiles, 84	growth, 52
profiling, 78	human glioma Gli36 see also Human glioma Gli36
regulation, 43, 77, 80, 83, 390	tumor cells
Transcriptome, 84, 88, 393	malignant epithelial, 96
analysis, 84, 384, 389, 391, 393	malignant, 97
rice see also Rice	progression, 56
rice seedlings see also Rice seedlings	Tumorigenicity, 196
Transesterification, 332	Type III secretion system (T3SS), 211, 216, 218
Transfection,	genes, 212
efficiency, 42, 44, 67, 99 in vitro, 100	Tyrosine phosphatase, 189 Tyrosinemia, 154
reagents, 116, 117	Tyroshichia, 154
vectors, 104	UDP-Glc:sterol glucosyltransferase, 337
Transferrin, 100, 190, 191	Ultracentrifuge, 81
Transfusion-related acute lung injury (TRALI), 189	Umbelliferone, 64
Transgene, 223, 224, 226, 245, 247, 319, 322, 323, 333,	Umbilical cord blood, 187, 188, 190, 191
344, 346, 349, 371	Untranslated region (UTR), 79, 84, 87
expression, 43, 248, 319, 324	Uridine, 143
insertion, 318, 319	Urinary bladder, 124
localization, 319	Urokinase, 64
silencing of, 370	Ustilagic acid, 177
targeting, 315	Ustilago maydis, 177
Transgenic mice, 46, 57, Fat-1, 252	UV-B irradiation, 386
Transglycosylation, 132-135, 137-139, 144	V2-vasopressin receptor, 57
TransKingdom RNAi (tkRNAi), 114, 115, 118-124	Vacuolar sorting determinant (VSD), 367
TransKingdom RNAi plasmid (TRIP), 118, 120, 122	Vascular endothelial growth factor (VEGF), 191-193
Translation, 42, 50, 78-87, 174	Vascular endothelial growth factor receptor-2 (VEGRF2),
cap-dependent, 79, 86	151
cAP-independent, 86	Vascular tissue specific promoter, 340 VCAM-1IL-1β, 252
deregulation, 84 differential see also Differential translation	VE-cadherin, 151
amerentian see also Differential translation	1 D Gadiletili, 131

cerevisiae strains, 27

Vector, 7, 8, 17, 42,	Yellow fluorescent protein (YFP), 50, 54, 58
amplicon, 46	Yersinia enterocolitica, 220, 221, 225
network see also Network	Yersinia pestis, 220, 221, 226
lentiviral see also Lentiviral vector	Yersinia pseudotuberculosis, 120, 220, 221
of metabolite, 6, 8	Yersinia, 218, 221
Vegetative insecticidal proteins (Vip), 219	YFP see also Yellow fluorescent protein (YFP)
Viral,	• • • • •
diseases, 316	Zinc finger nucleases, 247
nucleocapsid gene, 115	Zona pellucida, 246
replication, 319	Zygote, 213, 246, 253, 282
vectors, 99	Zygote, 213, 240, 233, 202
Virulence, 217, 218, 222, 299	$\alpha(1,3)$ -fucosyl transferase, 322
bacterial, 218, 221	α1,2-fucosyltransferase, 249
Erwinia virulence factor (evf), 222	α-1,3-galactose, 249
factor, 216, 219	α-1,3-galactosyltransferase, 249
mechanisms, 215	α-1,4-glycosidic linkages, 133
properties, 219	α-1-6 glucosidic linkage, 135
Virus, 188, 203, 220	α-2,3-sialyltransferase, 249
cauliflower mosaic virus see also Cauliflower mosaic	α-aminoacylase, 422
virus (CaMV)	α-D-glucosidase, 133
cytomegalovirus see also Cytomegalovirus (CMV)	α-D-oligoglucosides, 132
genes, 316	α-glucohydrolytic activity, 133
hepatitis C see also Hepatitis	α-glucosidases, 130, 133-135, 137, 139
human papillomavirus see also Human	α-glucosides, 130, 133
papillomavirus (HPV)	α-L-fucosidase, 132
particles, 316, 319	α-L-oligofucosides, 132
retrovirus see also Retrovirus	α-maltoside, 134
simian see also Simian virus	α-neuraminidase, 323
tobacco mosaic see also Tobacco mosaic virus	α-O-glucosides, 139
(TMV)	α-proteobacterium, 213
Virus-like particle (VLP), 323	α-tocopherol, 191
Viscosin, 165, 167, 172, 174	$\beta(1,2)$ -xylosyl transferase, 322
	$\beta(1,4)$ -galactosyl transferase, 322
Vitamins, 204, 206, 211, 213	
HP: 1	$\beta(1,4)$ -galactosylation, 322
Wigglesworthia glossinidia, 211	β-1,3-glucanase, 132
Wolbachia, 213, 214, 223, 224	β-1,4-mannan, 140
genes see also Genes	β-1-4 intermannosidic linkage, 144
genome see also Genome	β1-integrin, 121
	β-arrestin, 57
X. bovienii, 218	β-D-fucosidase, 140
X. nematophilus, 217, 218, 221, 225, 226	β-D-galactopyranoside, 142
Xanthine, 408	β-D-galactosidase, 133, 323
Xanthomonas oryzae, 383	β-D-mannosidase, 140, 141
X-box binding protein 1 (xbp1), 153	β-D-mannoside, 140
Xenobiotics, 154	β-glucosidase, 341, 343
Xenopus larvae, 48	β-glucuronidase, 367
Xenorhabdus, 215-218, 225	gene see also Genes
Xenotransplantation, 245, 246, 248, 249, 250, 256	β-glycosidasecapable, 416
X-ray irradiation, 196	β-glycoside hydrolases, 141
Xylan, 342	β-glycosidic linkages, 144
Xylobiose, 342	β-ketoacyl synthetase, 170
Xyloglucan glucan synthase, 337	β-mannopyranoside linkage, 142
Xyloglucan, 336, 337	β-mannosidase, 130, 133, 140, 144
	β-mannoside linkage, 144
Xylopyranose, 141 Yylogo 122 142 227 241 242	
Xylose, 133, 142, 337, 341, 342	β-mannosyl, 140
V 04 06 07 50 00 05 016 001 005 070	β-mannosylation, 140
Yeast, 24, 26, 27, 50, 82, 85, 316, 321, 325, 372	β-N-acetylglucosaminidase, 323
gene expression, 3	γ- (methylacryloxy)propyltrimethoxysilicane, 416
genera, 317	γ-Proteobacteria, 211, 216
glycan, 322	δ-endotoxin, 219, 222, 227
osmotic response of, 27	genes see also Genes
Puf proteins see also Puf proteins	
Saccharomyces cerevisiae see also Saccharomyces	