



**Children's Brain Tumour  
Drug Delivery Consortium**  
Accelerating Progress in Drug Delivery

**Children with  
Cancer UK**

Keeping families together



# Children's Brain Tumour Drug Delivery Consortium (CBTDDC)

Ruman Rahman

Assistant Professor

Deputy Chair CBTDDC

Edinburgh – 27<sup>th</sup> February 2020





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## Why now?

- Limited international awareness of the challenge of drug delivery in childhood brain tumours
- Drug delivery strategies which seek to bypass the BBB are showing promise in several tumour types
- Successful development of drug delivery systems needs collaborative approaches between multiple stakeholders.

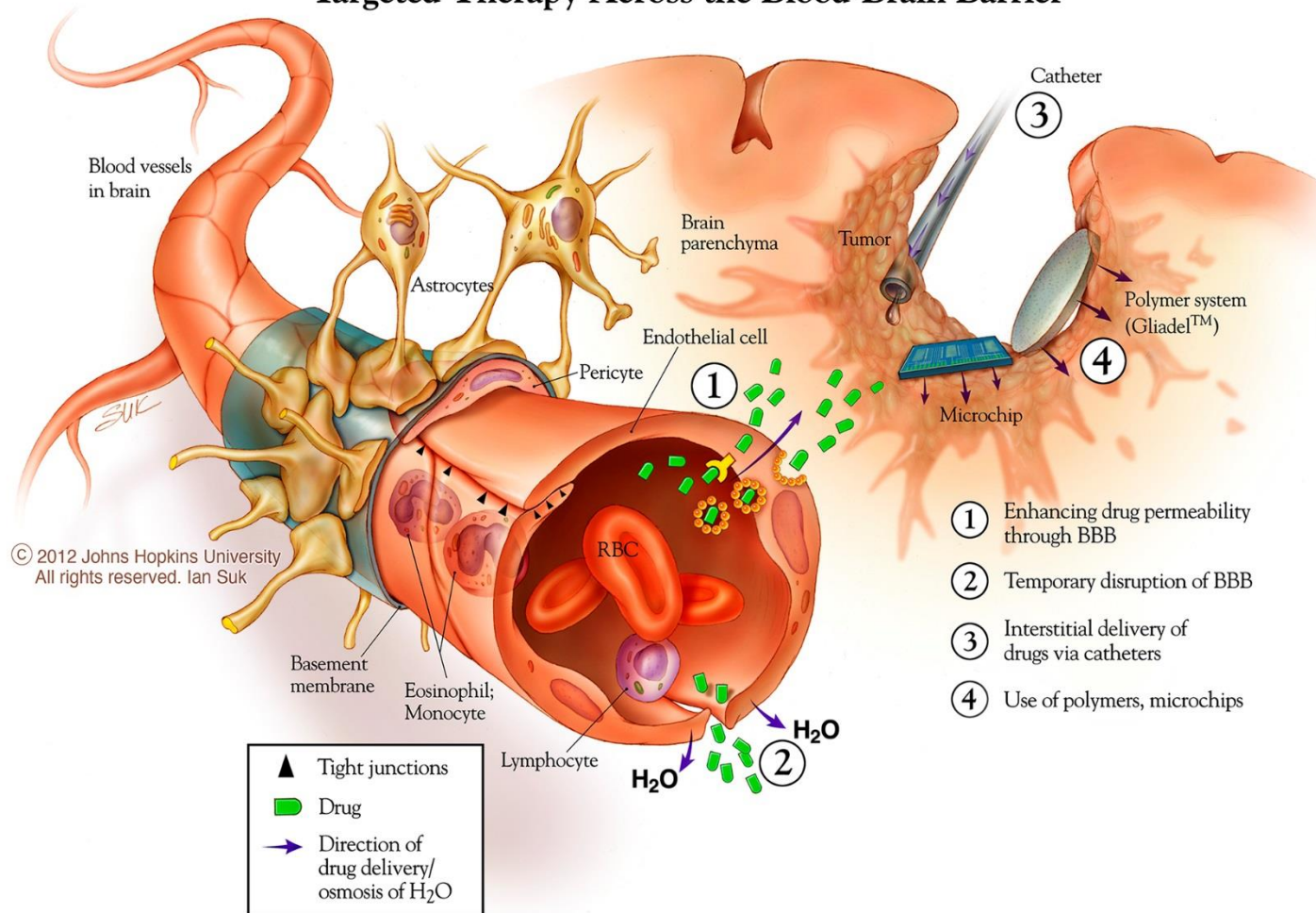


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## Targeted Therapy Across the Blood-Brain Barrier







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## Grant award (£500K)

- £200K
- 2 years
- 1 April 2017 – 31 March 2019
- *£300K follow-on awarded – 2019-2022*



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## An International Consortium





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## Mission statements

- Raise awareness of the challenge of drug delivery in childhood brain tumours and other brain diseases
- Initiate and strengthen research collaborations to accelerate the development and translation of drug delivery systems that target brain diseases.



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## ACCELERATE paediatric oncology conference Brussels, 2-3 March 2017

Ruman Veal    Dannis van Vuurden    Marie Boyd    Richard Grundy    Darren Hargrave    Steven Powell    David Walker  
Rahman







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## CBTDDC North America launch, New York June 2017

4th Biennial Conference on  
**Pediatric Neuro-Oncology Basic and Translational Research**  
June 15-16, 2017 The Wyndham New Yorker Hotel - New York, New York







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Drug Delivery Lunchtime Session – July 2<sup>nd</sup>, 2018.



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## Public dissemination

ecancermedicalscience

### Highlights of Children with Cancer UK's Workshop on Drug Delivery in Paediatric Brain Tumours

Audrey Nailor<sup>1</sup>, David A Walker<sup>2</sup>, Thomas S Jacques<sup>3</sup>, Kathy E Warren<sup>4</sup>, Henry Brem<sup>5</sup>, Pamela R Kearns<sup>6</sup>, John Greenwood<sup>7</sup>, Jeffrey I Penny<sup>8</sup>, Geoffrey J Pilkington<sup>9</sup>, Angel M Carcaboso<sup>10</sup>, Gudrun Fleischhack<sup>11</sup>, Donald Macarthur<sup>12</sup>, Irene Slavic<sup>13</sup>, Lisette Meijer<sup>14, 12</sup>, Steven Gill<sup>15</sup>, Stephen Lewis<sup>15</sup>, Dannis G van Vuurden<sup>16</sup>, Monica S Pearl<sup>17</sup>, Steven C Clifford<sup>18</sup>, Sorana Morrissy<sup>19</sup>, Delyan P Ivanov<sup>20</sup>, Kevin Beccaria<sup>21</sup>, Richard J Gilbertson<sup>22</sup>, Karin Straathof<sup>23</sup>, Jordan J Green<sup>24</sup>, Stuart Smith<sup>25</sup>, Ruman Rahman<sup>26</sup> and John-Paul Kilday<sup>27</sup>

### International Brain Tumour Alliance

## Accelerating progress in drug delivery: Children's Brain Tumour Drug Delivery Consortium

Emma Campbell, Ruman Rahman, Richard Grundy and David Walker

Brain Tumour Research Centre, The University of Nottingham, United Kingdom



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and, under the leadership of Professor David Walker, have big plans, ambitions and hopes for the next two years.

Children's brain tumours account for around 20% of childhood cancers in Europe. Around 4,800 cases are diagnosed each year in the US, and 30,000 - 40,000 per year worldwide.

Brain tumours are also the leading cause of cancer-related death in children and young adults in developed countries. Furthermore, damage to the developing child's brain means that two thirds of

disciplinary network of clinicians and researchers committed to developing drug delivery systems applicable to children with brain tumours.

Through raising awareness and sharing expertise with a range of stakeholders, it will be uniquely placed to strengthen collaborative developments in the field of drug delivery by working closely with the international brain tumour community and its funders.

The consortium's network of experts, initially from eight institutions across North America, Europe and Asia, will



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keyword(s)

[University of Nottingham](#) [News](#) [Press releases](#) [2017](#) [March](#) International consortium to accelerate safer and more effective treatment for children's brain tumours

## International consortium to accelerate safer and more effective treatment for children's brain tumours

MENU



01 Mar 2017 10:53:04:377

Brain tumours are the leading cause of cancer-related death in children and young adults. A major challenge to improving this outcome, is developing effective treatments that can cross the protective 'blood brain barrier' to directly target tumours in the brain.

A new international consortium is being launched in Brussels this week to bring together world-leading experts to take on this challenge, by exploring the use of novel drug delivery systems to physically bypass the blood brain barrier. The Children's Brain Tumour Drug Delivery Consortium, led by Professor David Walker at The University of Nottingham, is a two-year initiative funded with a £194,000 grant from the national charity **Children with Cancer UK** (<http://www.childrenwithcancer.org.uk/>).

[Click here for full story](#)

### Additional resources

No additional resources for this article

### Related articles

[Families join forces to raise money to detect brain cancer early](#)  
([/news/pressreleases/2017/february/families-join-forces-to-raise-money-to-detect-brain-cancer-early.aspx](#))

Wednesday 15th February 2017

[Do your bit this Christmas and help fund research for children with brain tumours](#)  
([/news/pressreleases/2016/december/do-your-bit-this-christmas-and-help-fund-research-for-children-with-brain-tumours.aspx](#))

Friday 2nd December 2016



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4/2/2017

Children's Brain Tumour Drug Delivery Consortium - The University of Nottingham

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**Children's brain tumours account for over 20% of childhood cancers, and are the biggest cancer killer in children and young adults.**

We still face many challenges.

[How the consortium is trying to help \(/about-us/\)](#)

## Children's Brain Tumour Drug Delivery Consortium

### Who we are working with



[\(/our-partners/our-partners.aspx\)](#)

With two years of funding provided by **Children with Cancer UK** (<http://www.childrenwithcancer.org.uk/>), we have the opportunity to set up this truly international consortium.

[Find out who we are working with \(/our-partners/our-partners.aspx\)](#)

### Register and get involved



[\(/register/register.aspx\)](#)

Do you want to improve the outlook for children with brain cancer? If so, and you have an interest in drug delivery approaches, join us.

[Register and get involved \(/register/register.aspx\)](#)

### Mission statements

- The Consortium will initiate and support discussions of an international, multi-disciplinary network of clinicians and researchers committed to developing drug delivery systems applicable to children with brain tumours.
- Through raising awareness and sharing expertise, the Consortium will be uniquely placed to strengthen collaborative developments to ensure that drug delivery gets the recognition and support it needs from funders, industry and regulators.
- The Consortium will work closely and collaboratively with patient and carer charities and not-for-profits to ensure that patient priorities and perspectives are appropriately reflected.

### Legal information

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### Contact us

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[www.cbtddc.org](http://www.cbtddc.org)





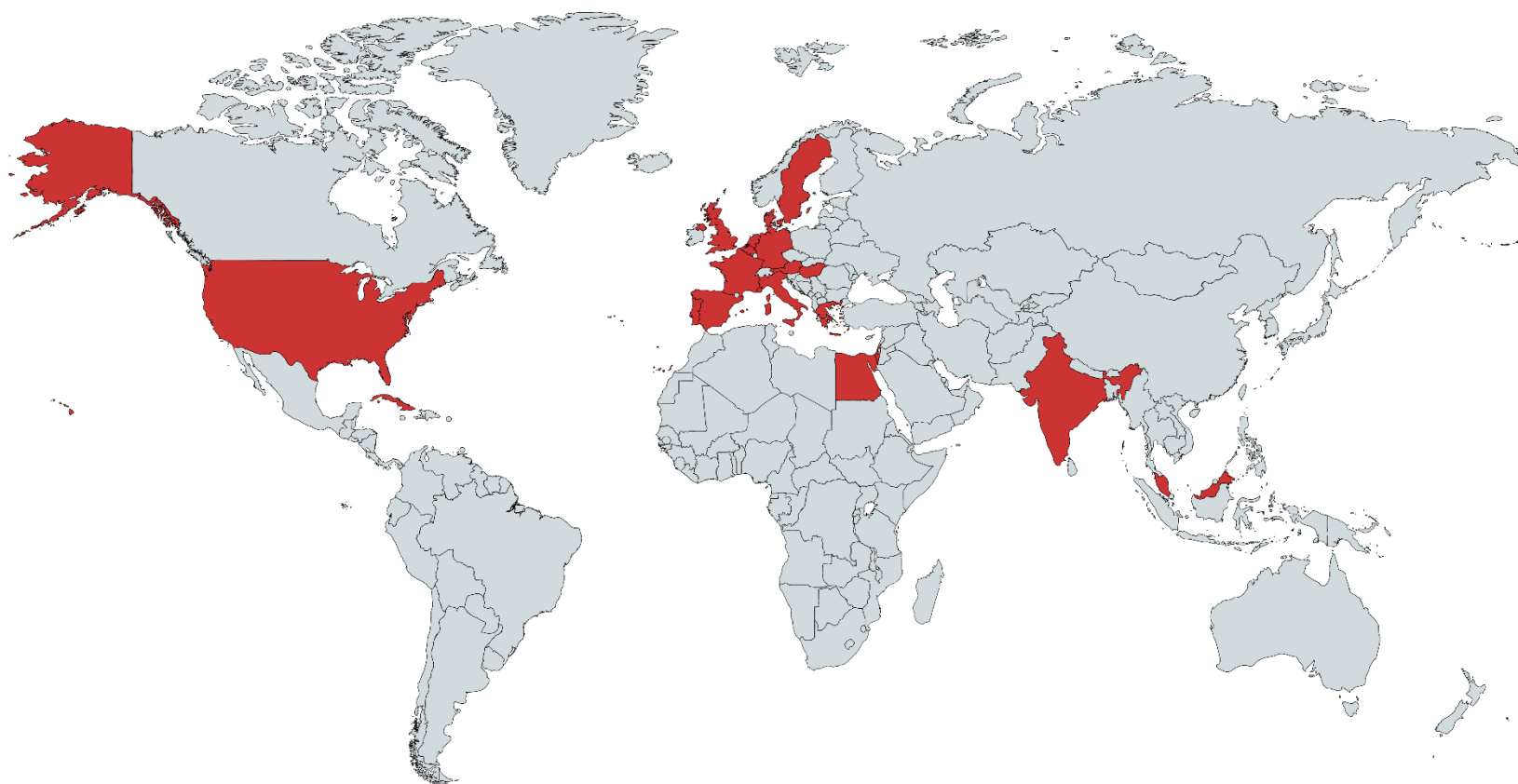
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## Global membership





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## Researcher Database

[www.cbtdc.org/research/list.aspx](http://www.cbtdc.org/research/list.aspx)

**84 academics in database**

**207 individuals registered  
on mailing list**

Preat, Veronique

Professor

Universite Catholique de Louvain, Belgium

Advanced Drug Delivery and Biomaterials

I lead the group Advanced Drug Delivery and Biomaterials at the University of Louvain. After the definition of an unmet need, a multidisciplinary approach is used to design new drug delivery systems and demonstrate their efficacy and safety in vitro and in vivo. The main area of research is the design, characterisation and preclinical testing of nanomedicines, in particular for glioblastoma treatment.

biomaterials Nanomedicine immunotherapy vaccine hydrogel

[View full profile](#)

[Email for contact details](#)

Rahman, Ruman

Assistant Professor of Molecular Neuro-Oncology

University of Nottingham, UK

My research group has developed a localised drug delivery system in which a biodegradable polymer (PLGA/PEG) is applied around the tumour cavity wall at neurosurgical resection. The polymer forms a paste at room temperature, which solidifies next to the surgical cavity wall at body temperature. This gives spatial control over dose delivery, extending the length of time infiltrative tumour cells are exposed to the drug. My expertise covers: (1) local biomaterial-based drug delivery systems for intracranial tumours, (2) 3D brain tumour models for drug screening, (3) bio-instructive nanotherapeutics, (4) HDAC inhibitors, (5) brain intra-tumour heterogeneity.

biomaterials polymers localised drug delivery intraoperative chemotherapy 3D models nanotherapeutics

HDAC inhibitors intra-tumour heterogeneity.

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[CRUK Drug Development Project](#)

Open (no closing date)

[MRC Biomedical Catalyst](#)

Open (no closing date)

[CRUK Pioneer Award](#)

Open (no closing date)

[A Kids' Brain Tumor Cure Research Grant](#)

Open (no closing date)

[CRUK Programme Foundation Awards](#)

Deadline 20 Feb 2020

[Brain Research UK Project Grants](#)

Deadline 25 Feb 2020

[The Anticancer Fund / The Rising Tide Foundation](#)

Deadline 28 Feb 2020

[Action Medical Research for Children & LifeArc Joint Translational Awards](#)

Deadline 3 March 2020

[The Brain Tumour Charity Clinical Biomarkers](#)

Deadline 12 March 2020

[The Brain Tumour Charity Expanding Theories Awards](#)

Deadline 12 March 2020

[CRUK Clinical Trial Award](#)

Deadline 19 Mar 2020

[CRUK Experimental Medicine Award](#)

Deadline 19 Mar 2020

[Wellcome Collaborative Awards in Science](#)

Deadline 21 Apr 2019

[UKRI Future Leaders Fellowships](#)

Deadline 30 Apr 2020

[Sir Henry Dale Fellowships](#)

Deadline 12 May 2020

[CRUK Biotherapeutic Drug Discovery Programme Awards](#)

Contact the research funding manager

[CRUK Biotherapeutic Drug Discovery Project Awards](#)

Contact the research funding manager

[CRUK Small Molecule Drug Discovery Project Awards](#)

Contact the research funding manager

[The Brain Tumour Charity Quest for Cures](#)

CLOSED (opens April 2020)





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### Upcoming conferences

	2020	
<a href="#">CBTDDC Workshop on Drug Delivery to the Brain</a>	February 27	Edinburgh, UK
<a href="#">Novel Drug Delivery Systems Congress</a>	February 28-29	Rome, Italy
<a href="#">26th Annual Blood-Brain Barrier Consortium Meeting</a>	March 12-13	Portland, USA
<a href="#">BBBNetwork meeting 'New Trends'</a>	March 13	Leiden, The Netherlands
<a href="#">Orphan Drugs and Rare Diseases Congress</a>	March 16-18	London, UK
<a href="#">International Society for Magnetic Resonance in Medicine 27th Meeting</a>	April 18-23	Sydney, Australia
<a href="#">American Association of Cancer Research (AACR) 111th annual meeting</a>	April 24-29	San Diego, USA
<a href="#">SIOPe Annual Meeting</a>	May 4-8	Valencia, Spain
<a href="#">Cancer Research UK Brain Tumour Conference</a>	May 12-14	London, UK
<a href="#">BIT's 13th Annual World Cancer Congress</a>	June 5-7	Lisbon, Portugal
<a href="#">Barriers of the CNS (Gordon Research Conference)</a>	June 14-19	New Hampshire, USA
<a href="#">EACR 2020 Annual Congress</a>	June 17-20	Torino, Italy
<a href="#">ISPNO (The 19th International Symposium on Pediatric Neuro-Oncology)</a>	June 21-24	Nagano, Japan
<a href="#">Novel Drug Delivery 2020</a>	June 22-23	Chicago, USA
<a href="#">2020 Controlled Release Society &amp; Exposition</a>	June 27	Las Vegas, USA



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**JOHNS HOPKINS**  
MEDICINE

**Translational Cancer Mechanisms and Therapy**

**Clinical  
Cancer  
Research**

## **Overall Survival in Malignant Glioma is Significantly Prolonged by Neurosurgical Delivery of Etoposide and Temozolomide from a Thermo- Responsive Biodegradable Paste**

Stuart J. Smith<sup>1</sup>, Betty M. Tyler<sup>2</sup>, Toby Gould<sup>1</sup>, Gareth J. Veal<sup>3</sup>, Noah Gorelick<sup>2</sup>,  
Jonathan Rowlinson<sup>1</sup>, Riccardo Serra<sup>2</sup>, Alison Ritchie<sup>1</sup>, Phillip Berry<sup>3</sup>, Annette Otto<sup>3</sup>,  
John Choi<sup>2</sup>, Nicolas Skuli<sup>2</sup>, Maria Estevez-Cebrero<sup>1</sup>, Kevin M. Shakesheff<sup>4</sup>, Henry Brem<sup>2,5</sup>,  
Richard G. Grundy<sup>1</sup>, and Ruman Rahman<sup>1</sup>





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## Pending activities

- Initiating a UK CNS Drug Delivery Working Group (National Cancer Research Institute 'Child CNS' and 'Novel Agents' subgroups).
- Continue discussions with **All-Party Parliamentary Group on Brain Tumours** about prioritising drug delivery in funding calls.
- Finalise and submit literature reviews to *Neuro-Oncology* on:  
**Biological Modelling Systems; Drug Repurposing; Drug Delivery Systems.**
- Co-host Society for Image-Guided Neuro-intervention (SIGN) /CBTDDC conference (Warwick, June 2020), linking image guidance with drug delivery to the brain.
- Co-host British Neuro-Oncology Society session on drug delivery at European Association for Neuro-Oncology conference (Glasgow, September 2020)