CRACK IT Solutions – successes from the NC3Rs technology partnering hub

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NC3Rs

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Who are we?

- Independent, scientific organisation
- Established by Government in 2004
- Use the 3Rs as a framework to support UK science, innovation and animal welfare
- Work with research funders, academia, industry and regulators – broad remit
- Budget ~ £10 million per annum
- 25 posts based in Central London
- Activities divided between:
  1. Research funding
  2. Centre-led science programmes
What do we do?

- Providing new models, tools & approaches
- CRACK IT: Challenges & solutions
- Open innovation
- Funding research
- Information resources
- Training & career development
- Policy, practice & regulatory change
- Expert groups & data sharing
- Guidance & publications
- Website & events
- Guidance & publications
- RAISING AWARENESS
- NURTURING TOMORROW'S LEADERS
- Fellowships
- Studentships
- Influencing decision-making
Why CRACK IT?

CRACK IT Solutions

CRACK IT Challenges

PUSH

PULL
What is CRACK IT Solutions?

- A technology partnering hub providing a route to showcase research and technology with 3Rs potential to the wider scientific community
- Aim is to find new partners for adoption, validation or further development
- Provide seed-funding to support these collaborations
CRACK IT Solutions process

Idea

Partners

£30,000
Up to 12 months

NC3Rs online networks
CRACK IT Solutions to date

- Launched in 2012
- 39 Solutions showcased - 25 SMEs, 14 academia
- > 160 new connections made
- Seed funding of £360k awarded ➔ additional £242k of leveraged funding
CRACK IT Solutions to date

- Launched in 2012
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- > 160 new connections made
- Seed funding of £360k awarded → additional £242k of leveraged funding
- Direct route in to 30 companies
- More than 3,000 member organisations/individuals reached through our partner networks
- More than 20,000 unique monthly views to NC3Rs/CRACK IT websites
CRACK IT Solutions

Where we are now: 2012-2016

- 39 Solutions
  - 64% SMEs
  - 36% Academia
  - 67% UK
  - 18% EU
  - 15% Other
  - 54% Replace
  - 31% Reduce
  - 15% Refine

Pioneering Better Science
CRACK IT Solutions
Where we are now: 2012-2016

Total 157 Key Contacts
- 41% Industry
- 59% Academia

Average ~5 contacts/Solution
- 72% UK
- 15% EU
- 13% Other

UK Contacts
- 30% Industry
- 70% Academia

EU Contacts
- 33% Industry
- 67% Academia

Other Contacts
- 93% Industry
- 7% Academia
Successes!
Case study 1: Reducing animal numbers in tasks of memory

Dr Alex Easton; Durham University

The technology
A new apparatus for reducing animal use in spontaneous recognition tasks as a measure of memory

Need for collaboration
Seeking partners with (i) compound libraries, and (ii) automation expertise

CRACK IT treatment
Outcomes
Four new connections:
- GSK (Shanghai)
- BIOSEB
- Campden instruments
- Academic institution

Funding application
Industry partner to provide compounds and expertise for validation
- Matched funding from the university

Impacts
- Successfully developed a version suitable for mice – industry requirement
- Demonstrated results from this apparatus are more reliable than standard approaches
- Reduced animal use by 50%
- Further investment in the technology by GSK
- Generated interest in the technology from other sectors and users
- Now working with a biotech company with automation/commercialisation expertise
## Case study 2: ZeGlobalTox: multi-organ toxicity testing in zebrafish

### ZeClinics

**The technology**

Preclinical zebrafish embryo screen to identify compounds with potential cardiac, hepato- and neurotoxicity in the same animal

**Need for collaboration**

Seeking partners with (i) compound libraries, and (ii) automation expertise

<table>
<thead>
<tr>
<th>CRACK IT treatment</th>
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<tr>
<td><strong>Outcomes</strong></td>
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<tr>
<td>Nine new connections:</td>
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<td>- 2 large pharma (USA)</td>
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<td>- 2 SME (EU)</td>
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<td>- 5 academics (EU)</td>
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**Funding application**

With SMEs to automate and develop for behavioural tracking, image analysis and easier integration into industry process;

- £20k leveraged from partners

**Impacts**

- Wider recognition of the company and technology platform
- Validation of the unique multi-organ tox assay, ZeGlobalTox
- Project with large pharma company to establish / evaluate a single organ CV model in zebrafish larvae
- ZeCardio® software developed and marketed to analyse ZF heart physiology
Why should potential Solution providers from academia and SMEs get involved?

- Expand and exploit their research in different areas
- Receive input from different audiences across sectors and disciplines
- Access expertise and in-kind contributions to validate their technology
- Identify and capitalise on novel market opportunities
- Apply for NC3Rs funding to support new partnerships
- Impact big business decisions as their product is taken up by large companies
- It’s free!
Why should potential collaborators get involved?

- **Medium and large companies**
  - Use the CRACK IT website to horizon scan for new technologies and products
  - Shape the R&D of new technologies to meet their needs
  - Help bridge the gap between basic and applied research to increase availability of novel research tools
  - Share experience and knowledge to create new markets for 3Rs products

- **Academia and SMEs**
  - Access NC3Rs funding to support new partnerships
  - New opportunities to apply their own research
How to get involved

- Visit the CRACK IT Solutions webpages: http://www.crackit.org.uk/crack-it-solutions
- Contact the CRACK IT Team at crackitenquiries@nc3rs.org.uk
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