

## TRAINING AND DEVELOPEMENT

NeuroAdapt will enable Fellows to strengthen and deepen their scientific skills. Each Fellow will work on a core research project of their own choice in a world-class, collaborative research environment, with close intersectoral engagement & mandatory intersectoral secondments. Communicating and discussing the science in this multidisciplinary environment will facilitate the development of scientific rigour and critical thinking, whereas secondments and interdisciplinary short visits offer valuable career development opportunities. In addition to this, NeuroAdapt will organise and host three Schools.

All Fellows will be required to attend all three Schools during their fellowship. The plan for Summer Schools is outlined below;

### School 1 – Core Skills

- Keynote talks (x3, 1h each), topics will include an overview of recent advances/opportunities in the treatment of brain diseases of focus by NeuroAdapt (e.g., epilepsy, psychological conditions, neurodegenerative diseases). Talks will be followed by a round table discussion with speakers and Fellows.
- Transferable skills:
  - 1) Post-doc Essentials (1 day) will be delivered by expert lecturers from RCSI Communications Department, and from private sector partners. Skills covered include: Management of Research Projects (Data Protection Impact Assessment (DPIA), record keeping, basic statistics/ data analysis, data standardisation, Standard Operating Procedure (SOPs), design of experiments, problem solving strategies, project management, and Introduction to Intellectual Property; Cyber Security), Green lab strategies (e.g., MSCA Green Charter; sustainable research), Personal Effectiveness (time management, critical self-assessment, work life balance, career management), Open Science (Open & FAIR data, collaborative tools, opening access to publications/ research data, OS resources will be provided online)
  - 2) Research Integrity (1 day, delivered by expert EDI lectures from RCSI) will include creative and critical thinking, research misconduct, data recording, interpretation & presentation, authorship/plagiarism, responsible research; Gender equality including gender and diversity in research & innovation delivered via PORTIA; Cultural awareness, Research Ethics & Policy, GDPR
  - 3) Scientific Communication, presentation/dissemination skills, teaching/learning techniques (e.g., on-line learning solutions, digital content/innovative learning technologies), scientific writing, responsible use of social media in science, metrics and altmetrics, SCiVal. The second part will discuss PPI and research.



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## **School 2 – “Opportunities and Challenges in patient care”**

- 2 days of seminars covering topics related to the development/use of clinical techniques; access to medicine/new technology assessment, EU health data space (EHDS), new diagnostic/therapeutic approaches, ethical issues of working with human tissue samples/patients, clinical trial design/management, clinical research & good clinical practice (ICH-GCP), patient-reported outcome measures (PROMs) & remote monitoring, responsibilities and expectations of all participants in the conduct of clinical trials, derived from ICHGCP Guidelines E6 and the EU Clinical Trials Directive (2001/20/EC).
- Further content will cover patient care & the development/use of clinical techniques, new diagnostic/ therapeutic approaches, clinical trial design & management, genetic counselling & differences according to gender in clinical trials (delivered by: Health Products Regulatory Authority). Round tables at the end of the session will allow Fellows to discuss any outstanding topics in more detail.
- Patient and Public Involvement (PPI) interactive session (1 day) will be co-organised by Fellows (agenda & execution) together with IPPOSI and Epilepsy Ireland, with speakers involving patients, caregivers, patient organisations and Fellows followed by a visit to Beaumont Hospital clinical facilities where Fellows will assist patient visits. These clinical encounters will allow Fellows to interact directly with patients and explain their projects.

## **School 3 “Commercialisation Bootcamp & Career Prospectives”:**

- Topics will include the link between Science, Business and Personal Career Development in Academia/ Industry. On completion, Fellows will understand what it takes to build a commercialisation strategy, covering: market needs/problems, proposed technological innovation/ solutions, commercial exploitation routes, project team management, business roadmap, work plan, funding necessities and entrepreneurship. IPR (intellectual property rights), commercialisation and regulation will be discussed from business, legal, scientific and health perspectives.
- Fellows will present their Business Pitch during an Innovation Pitches Session.
- Career Day (1 day), a mix of academic, clinical and industry contributors will advise on: Career opportunities & planning from an academic & industry viewpoint, global business strategies, CV writing and job interview techniques. A representative of the European Platform of Women Scientists (EPWS) will be invited to discuss gender balance in science careers/ support for female researchers.

In addition to Summer Schools, Neuroadapt will run several standalone courses for Fellows. These courses are listed below;



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- 1) The age of early disease diagnosis: Half-day workshop on new developments in the diagnostic space for brain diseases.
- 2) Personalised Medicine - drug design to personalised medicine: Full day workshop covering drug design, nanomedicine, use of biomaterials, personalised medicine, as well as the challenges in drug discovery, development & manufacturing from an industry point of view
- 3) Big data in Neuroscience: This 1-day workshop will cover new developments in big data generation, analysis & interpretation (e.g., proteomics, genomics, metabolomics)
- 4) Digital Health technology in genomic medicine: Half-day workshop exploring the role of digital Health in genomics & training on the Congenica genomics platform.
- 5) Human iPSCs in brain disease research: This half-day workshop will cover new approaches in using human iPSCs as model system for drug discovery for brain diseases
- 6) Machine learning vs Artificial Intelligence: An overview of two powerful, distinct approaches to data analytics, that can provide generate important insight from data
- 7) PPI in neurological research: Equipping the Fellows with skills & resources for improving the design & execution of their work, via PPI
- 8) Safe use & governance of patient data: An overview of the legislative & social landscape with regards to the governance & use of patient data. What needs to be in place for sustainable and impactful research
- 9) Using evidence to drive improvement: Collecting, analysing and interpreting data; Prioritising improvement projects; Process mapping; project management
- 10) Neuroproteomics and Systems Biology (Online): Correct translational use of omics data.
- 11) Cognitive and Behavioural Neuroscience (Online): An introduction to analysis of cognition and behaviour
- 12) Introducing continuous quality improvement in healthcare quality & safety: Understanding the healthcare system; health policy; Systems thinking
- 13) The impact of regulation on commercialisation. Half-day workshop outlining the regulatory landscape for medical devices, drugs etc. & the impact this has on commercialisation
- 14) Career paths for scientists in industry: Conversations with scientists working in industry & those with an entrepreneurial background, to communicate different routes/ impact experiences
- 15) NeuroAdapt Women's Leadership program: The program will span 4 months, covering the following topics: Women's Leadership and Research; Exploring Gender in successful applications; Women's Leadership and Industry; Imposter Syndrome; Commanding Presence. Coaching and Mentoring will be available to all participants in this leadership program to promote application of knowledge.