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BRINGING THE POWER OF MULTIDISCIPLINARY RESEARCH TO NEURODEGENERATION

A conversation with **FIONA MARSHALL**, VP Head of Neuroscience Discovery and Head of Discovery UK

MSD is creating a new Discovery Centre in London — the company's third in the world and its first in Europe — with the aim of ensuring that curiosity and innovation are at the heart of drug discovery. MSD is a trade name of Merck & Co., Inc., with headquarters in Kenilworth, New Jersey. Fiona Marshall, VP Head of Neuroscience Discovery and Head of Discovery UK at MSD, will develop the centre, which will focus on patients' needs in neurodegenerative medicine. Marshall is a world-leading expert in G-protein-coupled receptor (GPCR) biology, with more than 25 years' experience at companies including GlaxoSmithKline and Millennium Pharmaceuticals. She co-founded and led Heptares Therapeutics, now part of Sosei, and joined MSD in April 2018. Marshall and MSD aim to recruit more than 150 discovery scientists over the next few years, with the next round focusing on chemists and pharmacologists.

What brought you to MSD?
I helped set up the UK research centre for Millennium Pharmaceuticals, and then co-founded the biotech Heptares Therapeutics, both based on the idea of taking basic science and translating it into drug discovery. Startups are challenging, though – you spend as much time pitching for funding as you do working on the science. I joined MSD to set up its UK Discovery Centre, which has the benefits of a startup-type environment with the security of backing from a multinational biopharmaceutical company.

What are your plans for the Discovery Centre?
The UK Discovery Centre will have state-of-the-art laboratories, which will be home to a multidisciplinary team of biologists, pharmacologists and chemists. We want to create a place that will attract the best talent and provide a great environment. We will be looking for scientists who are collaborative, and who are keen to work with people from other disciplines. We are particularly keen on finding researchers who can solve problems, but who also know when to stop! I believe it will take these kinds of minds, in collaboration, to crack hard-to-treat diseases.

By locating in London, we can be close to leading UK academic and industry research in London, Cambridge and Oxford, and we can collaborate with the National Health Service (NHS) for research and clinical trials. We will also be within easy reach of Europe.

What diseases will the Discovery Centre tackle?
The focus will be on neurodegeneration and the diseases of ageing from a mechanistic perspective. We chose neurodegeneration because, as the population ages, it's going to be our biggest challenge in health care. There have been a lot of failures in neurodegenerative research this year, but these have actually taught us a lot, and have opened up the field again after years of concentrating on just a handful of approaches. We can take advantage of some great emerging science, including in molecular biology, and genetics. We are also finding new ways to test our discoveries, such as in human neuronal cells, rather than having to depend just on animal models.

What kind of science will go on at the Discovery Centre?
The centre will concentrate on drug discovery, which means we will carry out basic cell and molecular biology, retaining a mechanistic focus. These researchers will work with medicinal chemists and pharmacologists to translate the targets and develop potential drug candidates.

AS THE POPULATION AGES, IT'S GOING TO BE OUR BIGGEST CHALLENGE IN HEALTHCARE.

I believe that the key to successful translational medicine is selecting the right target and being able to validate it. While understanding the genetics is useful, it won't tell you everything you need to know. You still need to work out the right strategy to modulate the target, and how to deliver the drug, including across the blood-brain barrier.

Working in disease-agnostic cross-disciplinary teams is a familiar concept at MSD. We feel that it's important to work across diseases, because there are common concepts that apply irrespective of the therapeutic indication. For example, the science behind immuno-oncology, which involves understanding how the immune system can be used to target tumours, could also help researchers learn more about the immune response in neurodegeneration.

When will the Discovery Centre open?
The eventual aim is to build a new facility in London, but while we find the right site, our cell biology labs are already up and running at the London BioScience Innovation Centre, based at the Royal Veterinary College in Camden, London. We will soon have a team of chemists and pharmacologists based at the Francis Crick Institute, and we will collaborate with universities for research space.

The centre will be designed to grow. Eventually staff from the rest of MSD UK will come to join us, bringing skills in clinical development, regulatory affairs, commercialization and sales. We will also make sure that our drug discovery is aligned with the MSD Discovery Centres in San Francisco, California and Cambridge, Massachusetts as well as other teams across the MSD organization — we don't want to duplicate any of our research.

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WHY WE INVENT

AT MSD, WE ARE INVENTING FOR LIFE.

We are not inventing for invention's sake – we are on a quest to cure – and to have an impact on countless people's lives worldwide.

MSD is inventing because the world still needs cures for cancer, Alzheimer's disease, HIV, and so many other causes of widespread suffering in people and animals.

We are taking on the world's most challenging diseases to help people go on, unburdened, to experience, create and live their best lives.

INVENT. IMPACT. INSPIRE.

To explore our commitment to invention, visit www.msd-UK.com and connect with us on Twitter @MSDintheUK and on LinkedIn and YouTube at MSD in the UK.

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