



PRISM Press Release:

Success of innovative mental health research leads to exceptional additional support for new project from IMI, World's biggest public-industry drug development partnership

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- PRISM project aims to identify biomarkers for mental disorders
- Success of first part of project has led to funding from the Innovative Medicines Initiative 2 Joint Undertaking for a new project that will build on PRISM's successes
- Focus on Alzheimer's disease, schizophrenia and Major Depressive Disorder
- 14 companies and institutes will cooperate on project

Building on the success of innovative research by the PRISM project, the Innovative Medicines Initiative 2, a joint undertaking between the EU and the European Federation of Pharmaceutical Industries and Associations (EFPIA), has backed the program with funding for a new project to explore the underlying biology of Alzheimer's disease, schizophrenia and Major Depressive Disorder (MDD). The new PRISM 2 (Psychiatric Ratings using Intermediate Stratified Markers 2) project aims to identify quantitative biological features common across the diseases, opening the possibility of developing targeted treatments irrespective of traditional diagnosis.

Most mental health or neurological problems are only diagnosed when they begin to have an effect – for example when people begin to sink into depression, or when Alzheimer's disease begins to affect their memory. The ability to understand the biological causes of mental health conditions before clinical onset – which may lead both to early diagnosis and targeted treatment - has long been a “holy grail” of neuroscience. These disorders are also much more complex than often recognised. Alzheimer's patients do not only exhibit impairments in memory in the same way that schizophrenics are not only plagued by positive symptoms and psychosis. Indeed, there are many symptom domains that do not align neatly with traditional diagnoses but appear in individuals with a variety of different diagnoses.

The original PRISM project has taken the first steps at developing a suite of biological tests, including Magnetic Resonance Imaging (MRI), blood tests, smartphone monitoring and Electroencephalogram (EEG) which will allow more objective diagnosis of the conditions, and indicate which brain mechanisms are involved, potentially identifying targets for tailored treatment.

PRISM launched in 2016, worked with patients to measure brain and behavioural activities using a variety of new and existing techniques. The project focussed on Alzheimer's disease and schizophrenia and used social dysfunction, which is common to both conditions, as a key to access the underlying causes. This part of the project has successfully identified measurable biological indicators related to traditional diagnoses of schizophrenia and Alzheimer disease. However, the unbiased approach in PRISM also allowed a novel "transdiagnostic" link between a neural circuit and social dysfunction to be identified. The new PRISM 2 project aims to probe these findings more deeply as well as casting the net more broadly to include Major Depressive Disorder.

Social dysfunction is one of the earliest indicators of the onset of several common psychiatric and neurological disorders but it is a symptom that may be caused by very different neurobiological processes. People with social dysfunction tend to retreat from friends and family, as well as from social networks at their workplaces. No-one knows the real underlying causes and mechanisms.

By probing large genetic databases, such as the UK BioBank, the team found 19 genetic variations linked strongly to social dysfunction. Intriguingly all of these 19 genetic variations were confirmed as being linked to protein expression in the specific circuit identified in the study.

These findings led to the IMI agreeing to a €7.9m funding allocation to build on the results in a new project.

Academic project coordinator and Professor of Behavioural Neuroscience at the University of Groningen, Prof. Dr. Martien Kas, said:

"PRISM has been able to apply new statistical and monitoring tools to unpick biological associations with mental health and neurological conditions. For example, using GPS and call logs on smartphones show how much people move and interact, which indicates social functioning status. We can relate behavioural traits to findings from MRI and EEG: in fact we have identified over 4000 relevant biological markers. We are now beginning to identify patterns which associate these markers and behavioural traits with conditions such as Alzheimer's disease and schizophrenia, and this is what has led the IMI Joint Undertaking to support phase 2 of the project.

PRISM 2 will aim to determine just how reproducible and accurate our initial findings are, especially in schizophrenia and Alzheimer's disease, and we will investigate generalizability of the findings to a third indication, namely Major Depressive Disorder. The ultimate aim is to translate our findings into practical diagnosis and treatment".

14 institutes and companies in the EU, the UK, and the USA will cooperate on PRISM 2.

IMI Executive Director, Dr Pierre Meulien, said:

“By bringing together partners including patients, universities and companies, PRISM succeeded in shedding new light on some of the underlying causes of schizophrenia and Alzheimer’s disease. PRISM 2 will build on this work and if successful, could significantly change how we see and treat mental illness.”

Industrial project leader and Head of Department CNS Diseases Research at Boehringer Ingelheim, Dr. Hugh Marston, said:

“We do need to focus, in an unbiased manner, on the problems that neuropsychiatric patients actually suffer from. PRISM was an excellent example of patients, academics, CROs and major pharma coming together to try to shed new light on these life changing disorders. I am excited that the findings of PRISM’s paradigm changing approach to mental health have led to the extension of this project. We hope that our research will yield better diagnosis and treatment choices that transform the lives of people with Alzheimer’s disease, schizophrenia and Major Depressive Disorder.”

List of participating companies and Institutes, PRISM 2

Participant No.*	Participant organization name	Country
01 (COO) RUG	University of Groningen	The Netherlands
02 P1vital	P1vital LTD	United Kingdom
03 RUMC	Radboud University Medical Center	The Netherlands
04 CIBER	Centro de Investigación Biomédica en Red	Spain
05 UNIBO	University of Bologna	Italy
06 VUMC	VU University Medical Center Amsterdam	The Netherlands
07 BIOTRIAL	BIOTRIAL SAS	France
08 SBG	SBGneuro Ltd.	United Kingdom
09 concentris	concentris research management	Germany
10 LUMC	Leiden University Medical Center	The Netherlands
11 ECNP	European College of Neuropsychopharmacology	The Netherlands
12 CVB	Cohen Veterans Bioscience	USA
13 BI	Boehringer Ingelheim International	Germany
14 PGI	PsychoGenics	USA

Notes for editors

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