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PRESS RELEASE

CEA and Bio-Modeling Systems open new therapeutic strategies for psychiatric disorders

CEA and Bio-Modeling Systems (BMSystems) announce a promising development in the innovative use of agents capable of modulating the therapeutic effect of psychotropic molecules (antidepressants, anxiolytics ...). These results arise from the work undertaken at CEA-iMETI (Institute of Emerging Diseases and Innovative Therapies), Fontenay-aux-Roses, in collaboration with the integrative biologists of Bio-Modeling Systems and the utilization of its CADI™ modeling platform.

The innovative therapeutic strategy developed by researchers at CEA-iMETI and integrative biologists at Bio-Modeling Systems, is based on the inhibition of proteins, the connexins, involved in many cellular junctions. *"The initial strategy was to target neurodegenerative, prion-related diseases such as Creutzfeldt-Jakob disease, but the results led to a much broader concept, applicable to many fields of psychiatry"*, says CEA-iMETI's Jean Philippe Deslys. Computer-driven, heuristic (non-mathematical) in silico modeling from the CADI™ platform, and research at CEA-iMETI have identified the connexins, responsible for neuro-glial communication, as major players in the disease process. The research also identified, through screening of a large library of existing molecular data, the molecules that modulate the activity of connexins. *"In 2005, we achieved a world first in systems biology. It was a challenge for our young company, BMSystems. The CEA rose to it and by validating our approach we built the first in silico heuristic model of a complex human disease"* says François Iris, BMSystems' Scientific Director. *"The CEA, through its development strategy, brought us the best industrial proof-of-concept we could possibly hope for"*, said Manuel Gea, BMSystems' CEO. *"The research conducted jointly by researchers at the CEA and BMSYSTEMS led to value and assets creation in both patenting and the birth of a start-up. This exemplary collaboration was made possible by the ecosystem created by the Medicen Paris-Region competitiveness cluster and it illustrates the ability of the CEA to create economic activity"*, said Pierre Chagvardieff representing the CEA at the pole Medicen.

Mental health is a major public health issue. According to the WHO, mental diseases rank third in terms of disease prevalence and are responsible for a quarter of disabilities. France ranks at the top of psychotropic consumers in Europe. The 2010 Health Barometer survey of the National Institute for Prevention and Health Education (INPES) reveals that about 18% of the population reported having used at least one psychotropic drug during the year. However, these classes of molecules have sometimes very debilitating side effects: anxiety, weight gain, sexual problems ... and are often associated with dependence (50% of treatments with benzodiazepine - INSERM Report 2012). There is a strong demand for regulation of psychotropic drugs prescription and for innovative concepts towards the renewal of therapeutic strategies (ITMOs Public Health Aviesan).

About CEA-iMETI

A major player in research, development and innovation, the Atomic Energy and Alternative Energies Commissary (CEA) operates in four main areas: low-carbon energies, information and communication technologies for health, Very large research infrastructures (TGIR), defense and global security. For each of these four areas, the CEA is characterized by excellence in fundamental research and guarantees a supporting role to the industry.

Research at the Institute of Emerging Diseases and Innovative Therapies (CEA-iMETI) focuses on the unique aspects of emerging diseases and atypical pathogens (especially prions), virus-host interactions in the context of infectious diseases, their control and differentiation mechanisms and the identification of novel therapeutic approaches.

For more information: www-dsv.cea.fr

About Bio-Modeling Systems (BMSystems)

Founded in 2004, Bio-Modeling Systems (BMSystems) is a pioneer in non-mathematical in-silico heuristic models validated in vivo, in the areas of infectious diseases, immunology, neurology, psychiatry, oncology, dermatology. BMSYSTEMS made diseases of the central and peripheral nervous system's its priority research axis. . Clearly, the brain cannot be reduced to its neurons only!

For more information: www.bmsystems.net

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