



BIO-MODELING SYSTEMS

The R&D Booster for Life Science Discoveries
A leading Integrative Systems Biology Company

MISSION

BMSystems is a research-based biotech company that creates CADI™ (Computer Assisted Deductive Integration) models with immediate applications generating highly effective businesses, through contractual / collaborative programs.

TECHNOLOGIES

CADI™ models are “first-in-class” answers explaining & harnessing the non-linear mechanisms of life and diseases, thus revealing “pertinent” biomarkers & therapeutic targets.

- CADI™ models are “first-in-class”. 2003, publication with INSERM unit 553 of the world’s first successful independently validated model of a complex human disease in Nucleic Acids Research.
- CADI™ models belong to the non-mathematical class of models. Because mechanisms of life are integrative & non-linear processes, they require “specific” approaches to be correctly understood.
- CADI™ model building approach, based on the disruptive “negative selection” concept, has powerful synergic effects upon R&D processes leading directly to patentable discoveries. It has repeatedly allowed researchers to take the best possible decisions for the best possible results in a minimum of time and resources.

MARKETS

- Pharma – Biotech: BMSystems improves success-rate of pharma R&D through the direct exploitation of its experimentally validated predictive models. BMSystems is particularly active in the fields of neuro-degenerative diseases (Creutzfeldt-Jakob, Alzheimer), psychiatric disorders and oncology.
- Energy - Chemicals - Environment: BMSystems applies its know-how to « industrial biotech » (transition from fossil to biomass carbon) via the discovery & modeling of bio-reactions that improve the efficiencies of processes based on micro-organisms (bacteria, yeast...)
- Biodefense – Biosecurity: BMSystems addresses bacterial, viral and toxins threats through Pherecydes-Pharma, its successful spin-off company, that exploits 3 patents from CADI™ models outputs.

DOMAINS

DOMAINS	CADI™ PROGRAMS
CNS / Peripheral Nervous System	Neurodegenerative (Creutzfeldt-Jakob ² , Alzheimer ¹) diseases, Psychiatric disorders ⁵ , Pain ³ , Migraine ⁵ , Multiple Sclerosis ⁵ , Fibromyalgia ⁵
Oncology	Breast cancer ³ , Tamoxifen resistance ³ , Metastasis ²
Infection / Immunology	Antibacterial bio-agent ¹ , Hepatitis C ⁵ , CFS (Chronic Fatigue Syndrome) ¹
Tissue differentiation	Adipocytes growth control ⁵ , Mullerian regression ²
Metabolism	Hypercholesterolemia ⁵ , Metabolic Syndrome ⁵
Industrial biotech	Program Synthons ² : leading Industrial biotech collaborative R&D platform
Proteins diversification engine	CADI™-TAPE Process ³ to improve antibodies, enzymes, long peptides etc..
Nanobiotech, Phages	Pherecydes-Pharma ⁴ , BMSystems’ spin-off, Nano-biotechnologies & nano-devices through phage genetic engineering.

1: Models ready for experimental evaluation; 2: Experimentally validated models;
 3: Experimentally validated and published models; 4: Experimentally validated and industrially

Upcoming Highlights

- Launch, by CEA Life Sciences, of a new biotech company to exploit a shared patent on therapeutic strategies and pre-clinical platform in the field of psychiatric disorders.
- Results of three international collaborative research programs
- Signature of a new research program on psychiatric disease with a big pharma.
- Signature of a new competitive program in the fields of green chemicals.
- Launch of our research program in green bio-energy

Recent Highlights

- Signature of a CADI™ research program with a world leading company in skin care and dermatology
- Pherecydes-Pharma raised 1.15 M€ and received 500k€ from the French innovation Agency
- BMSystems received a “Bio-IT World Best Practices Award” from the Cambridge Healthtech Institute.
- Launch of *BioXplain*: The First Open Platform for iterative, Predictive and Integrative Biology with BioXpr and Kayentis.

CORE TEAM

A senior multidisciplinary team of international experts with proven ability to generate powerful synergies between Integrative biology and Experimental scientists

- François Iris (PhD): Chairman, Chief Science & Technology Officer. Geneticist, physiologist & molecular biologist. Creator of Millennium Pharmaceuticals' (USA) high-throughput DNA sequencing unit. Former collaborator of Nobel Laureate Prof. Jean Dausset. Inventor of new technologies in molecular biology (over 30 patents). Former co-founder and C.S.O. of ValiGen SA in Paris. MRC Overseas Fellow. Member of H.U.G.O. and of the Wellcome Trust's Systems Biology Experts board.
- Manuel Gea: C.E.O & VP R&D Information Systems. Scientific Engineering Degree from Ecole Centrale Paris, President of the Advisory Board PHERECYDES PHARMA. Former CEO Hemispherx Biopharma Europe. Founder and President of Centrale-Santé. Former McKinsey executive, creator of Practice Pharma services in France. Former Division Managing Director with Boehringer-Ingelheim France. Former International business manager Colgate-Palmolive Company (US), Co-founder and Vice President of the Biotech Committee of the Association of the Pharma companies operating France (Leem). Member of the Executive Board Medicen cluster.
- Gérard Dine (MD, PhD): Chief Medical Officer. Physician & biologist. Head of the Haematology Dept. at Troye's hospital. Head of the Biotechnology Dept. at Ecole Centrale Paris. Founding-President of Troye's Institute of Biotechnologies. Former President of the Institute for Sports Medicine.
- Paul-Henri Lampe: CIO, Bioinformatics & Systems Integration Director. Systems Engineering & Systems Integration specialist. Scientific Engineering Degree from Ecole Centrale Lille. Master Degree in Applied Mathematics from Ecole Centrale Paris. Former Systems Integration Manager at IBM.
- Pablo Santamaria: I.T. & On-line Information Systems Director. Scientific Engineering Degree from Ecole Centrale Paris. Founding-President of the computing firm Formitel (1988). Founding President of the Centrale-Ethics Think-Tank.

BMSYSTEMS' TRACK RECORD

- 8 CADI™ models produced in 5 major medical areas, (CNS/ PNS, Oncology, Infection / Immunology, Tissue differentiation, Metabolism),
- 1 patent in "psychiatric disorders" in collaboration with CEA Life Sciences Dept,
- 4 patents filed in "therapeutics for infectious diseases", "nanobiotech", "psychiatric diseases",
- 2 technological platforms (pre-clinical evaluation for psychotropic molecules and industrial biotech),
- 1 operational spin-off in Biodefense/Biosecurity (infectious threats),
- 2 bacterial strains under development for "Synthons", the major industrial biotech collaborative R&D program in France,
- 2 publications in "oncology" with INSERM unit 553, 1 publication in tissue differentiation
- 1 scientific publication pending in "neurodegenerative diseases" with CEA Life Sciences Dept,
- 1 publication pending on drug development with a Pharma,
- 1 reference textbook chapter on "Biological Modeling in the discovery and validation of cognitive dysfunctions biomarkers",
- 1 reference textbook chapter pending on "Systems Biology applied to physiological issues".

COMPANY INFORMATION

- Creation: August 4, 2004
- Number of employees: Currently: 9, and 100 professionals working as partners on BMSystems programmes and projects
- Profitable since 2006
- Private Company, 100% owned by its founders (no search for external investors)
- Member of BIO (Biotechnologies Industry Organization) and MEDICEN Cluster.
- BMSystems' spin-off: www.pherecydes-pharma.com

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