



Biomedical Sciences Research Center "Alexander Fleming"
Greek Life Sciences Business Day, October 16 2008

John Strouboulis, PhD



Who we are



- Fleming Started its activities in 1998 as a Private Legal Entity
- Supervised by the GSRT, Greek Ministry of Development



Who we are

- Four Research Institutes currently active
 - Immunology
 - Molecular Biology and Genetics
 - Molecular Oncology
 - Cell and Developmental Biology
 - (Microbiology and Virology)
- Scientific personnel *our most important asset*
 - 14 group leaders, more than 130 research staff (staff scientists, grad students, technicians, postdocs)
 - Young scientists, international experience, high caliber



What we do

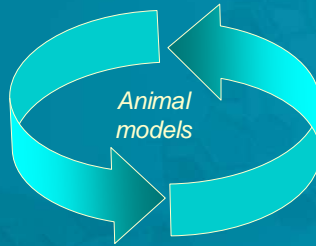
- Institute of Immunology
 - Pathogenesis of inflammatory pathways (*Kollias, Aidinis, Graf, Douni, Mosialos*)
 - Posttranscriptional gene regulation in inflammation and cancer (*Kontoyiannis*)
 - Angiogenesis (*Kostourou*)
- Institute of Molecular Biology and Genetics
 - Epigenetic mechanisms of gene regulation in physiology and cancer (*Talianidis, Agalioti*)
 - Neuronal stem cells (*Remboutsika*)
 - Neurobiology of learning and memory, neurodegeneration (*Skoulakis*)
- Institute of Molecular Oncology
 - Signaling pathways in cancer (*Panayotou*)
 - Hematopoiesis and leukemia (*Strouboulis*)
 - microRNA bioinformatics (*Hatzigeorgiou*)



How we do it: Technology Platforms

Functional Genetics

Transgenesis
Mutagenesis
Biochemistry
Molecular
Cellular



Functional Genomics

Bioinformatics
Phenomics
Imaging
Proteomics
Genomics



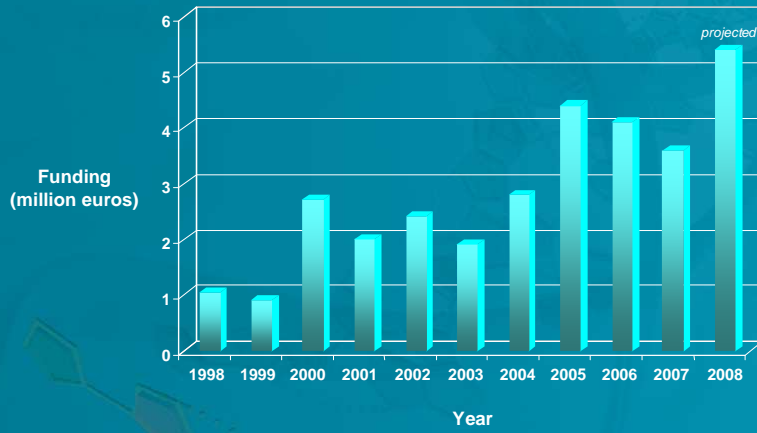
Our Achievements

- Achievements/Awards

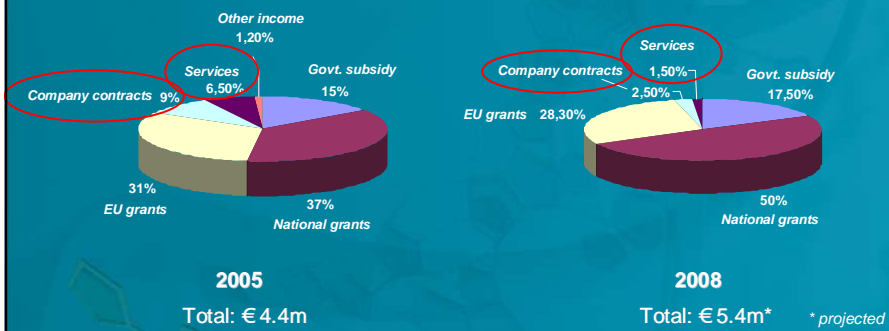
- National and International Awards for researchers (Bodosakis' Foundation, EMBO, Leukemia and Lymphoma Society)
- High Impact Scientific Publications
- Awards of competitive national and international grants
- Coordinator of an EU FP6 'Network of Excellence' NoE in Functional Genomics, €11m, 2005-2009
- Coordinator of an FP7 Marie Curie Initial Training Network on Gene Regulation, €2.3m, 2008-2012
- 2002 and 2005: Centre of Excellence by international review committee under the auspices of the Ministry of Development



Our Funding



Our Funding

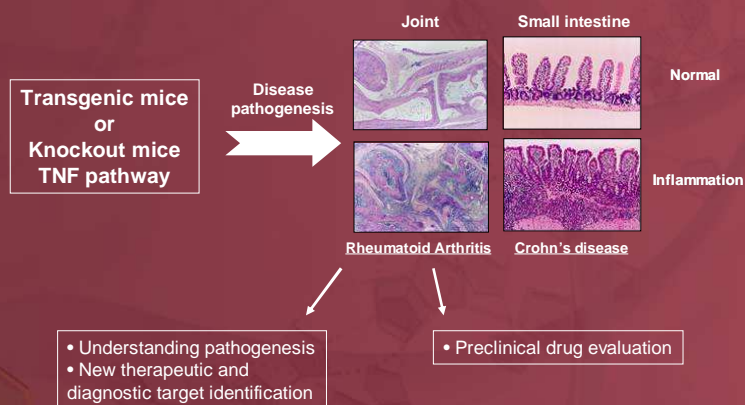


Our Products and Services

- Proprietary animal models for human disease, e.g. inflammatory, neurodegenerative diseases. Preclinical drug testing and validation
- Cutting edge technical services and facilities built on needs, capacities and expertise of Fleming's researchers. Available to external users as services
- Valorization
 - Building intellectual property portfolios
 - Spin off companies



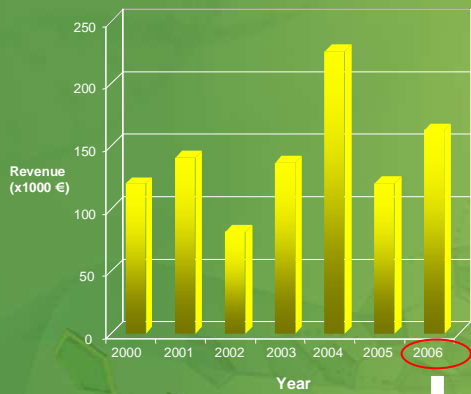
Animal models of human disease: inflammatory disorders



George Kollias group (RA, Crohn's, EAE etc.)



Animal models of inflammatory disease: preclinical evaluation contracts



Contracts with:

- Centocor
- Isis Pharma
- BASF
- Amgen
- Merck
- Medidom
- Abbott
- Novo Nordisk
- Celltech
- Millenium Pharma
- Domantis
- Peptech
- Ablynx
- Direvo
- Debiopharm
- Abgenix
- Chemocentryx

Fleming's first spin-out company



Biomedcode
Priming drugs for success

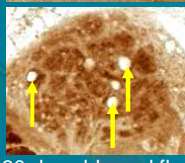
Company Profile

- Founded: **last quarter of 2006 as a spin off company of BSRC AI, Fleming.**
- Services: **Pre-clinical drug evaluation models and services using transgenic mice**
 - **Humanized transgenic models of autoimmune and inflammatory conditions** (arthritis, cachexia, sepsis, multiple organ failure, inflammatory bowel disease)
 - **Induced models (CIA, EAE, sepsis etc)**
 - **Gene expression profiling**
 - **Customized protocols**
 - **Histopathology**
- Mouse Models: **proprietary, world recognized for human disease, FDA recommended.**
- Facilities: **independent laboratories/offices**
- R&D: **Active**
 - **generates new and novel humanized mouse models.**
 - **Participates in FP6 and FP7 European grants**
- Staff: **Six well trained and experienced scientific personnel**
- Clients: **Big Pharma, Biotechnology companies (Europe, USA, Australia)**

Animal models of human disease: Alzheimers in Drosophila

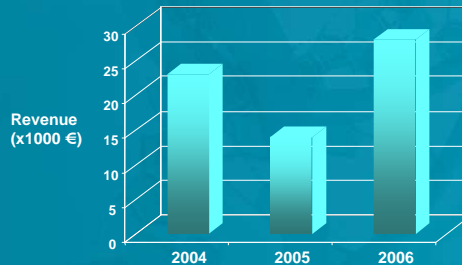


normal



lesions

30 day old aged fly



EnVivo Pharma

Fly school: memory and learning,
enhancing compounds?

Makis Skoulakis group



Fleming Service Units and Facilities

- Protein Chemistry Lab, *ISO Certified*
- Animal House, *ISO Certified*
- Transgenic Facility, *ISO Certified*
- Genotyping Facility
- Expression Profiling Facility and BioIT Unit
- Flow Cytometry Facility
- Innovation and Enterprise Unit



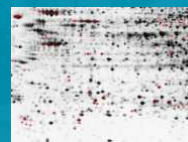
Protein Chemistry Lab

Cutting edge services in biomolecular and protein interaction characterization



BIACORE

- Protein identification by mass spectrometry
- Mapping of protein post-translational modifications
- Protein expression, purification and characterization
- Protein fractionation by various electrophoretic methods
- Peptide fractionation by high pressure chromatography
- Analysis of biomolecular interactions by biosensors
- Analyte identification in clinical samples
- Protein and nucleic acid quantitative analysis



2D protein electrophoresis



FPLC



HPLC



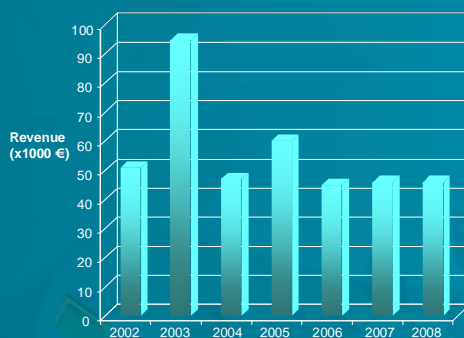
Mass spectrometry

Head: Dr. George Panayotou

EN ISO 9001:2000 Certification



Protein Chemistry Lab

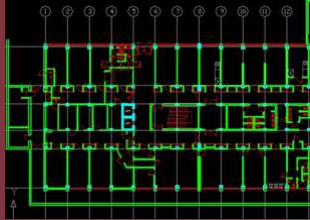


Head: Dr. George Panayotou

- National Cancer Institute
- McGill University
- University College London
- Wyeth Hellas
- Schering-Plough
- Aristotelian University, Thessaloniki
- Ludwig Institute for Cancer Research
- Hellenic Pasteur Institute
- BioCryst Inc.
- Athens University Medical School
- Kimmel Cancer Center
- University of Ioannina
- National Metsoviaon Technical University
- Agios Savvas Hospital
- University of Thessaly
- Dimokritos Research Center
- Erasmus University
- Patras University



Animal House



Head: Dr. Marie Kamber

- Biggest facility in Greece
 - 600m², capacity for 18,000 mice
 - 8 caretakers, 2 technicians, 2 senior scientists
 - EN ISO 9001.2000 certification
- Services
 - Breeding, hosting and supply of mouse strains, wild type and transgenic
 - Handling of mice, surgical procedures, sample taking
 - γ irradiation for bone marrow transplantation
 - Histology lab
 - Internal and external users



Laboratory Animal Science Course



"ALEXANDER FLEMING"
Biomedical Sciences Research Center

B.S.R.C. Alexander Fleming • 34 Alexander Fleming, PO 16672 Vari, Greece
Tel.: 00 30 210 9 656310, Fax: 00 30 2 10 9656563 • Web: <http://www.fleming.gr>

International Course on Laboratory Animal Science

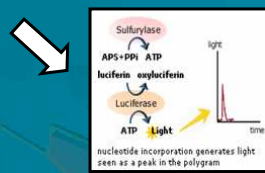
Vari, Greece 22 Sept - 3 Oct 2008



A two-week intensive course on the basic facts and principles that are essential for the humane care and use of animals in the laboratory and research quality. Course contents are in line with recommendations of the Federation of European Laboratory Animal Science Associations (FELASA Category C) regarding the training of young scientist whose research involves the use of vertebrate animals.



Genotyping Facility



Pyrosequencing

Clinical diagnostics

- *Mutation screening*
- *Customized mutation screening assays*
- *Pharmacogenetics*
- *CpG methylation status quantification*
- *Microbial / viral detection and resistance assessment*

Head: *Dr. Eleni Douni*



Expression Profiling Facility and BioIT Unit



- Affymetrix platform for RNA expression analysis, e.g. clinical samples
- Illuminex platform for multiplex analysis of several markers
- Bioinformatic analysis and support, data mining

Head: *Dr. Vasilis Aidinis*



The future

- Participation in European Research Infrastructures, e.g. Infrafrontier
- Implementation of the entire drug discovery and development process
- Business development through IP portfolios, spin off companies
- Biotechnopolis



Infrafrontier

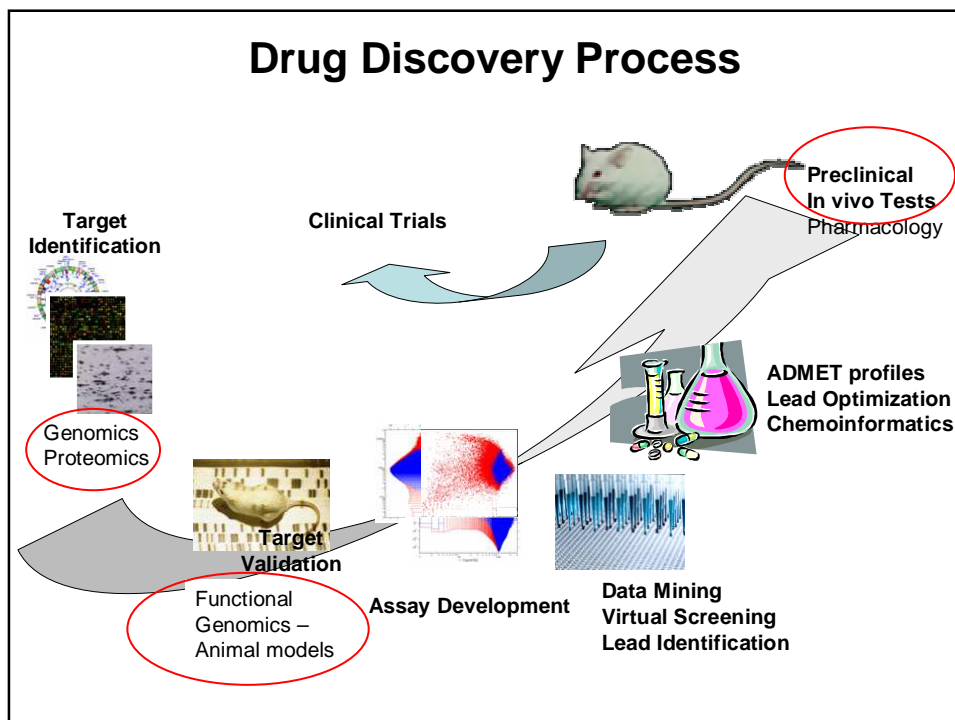
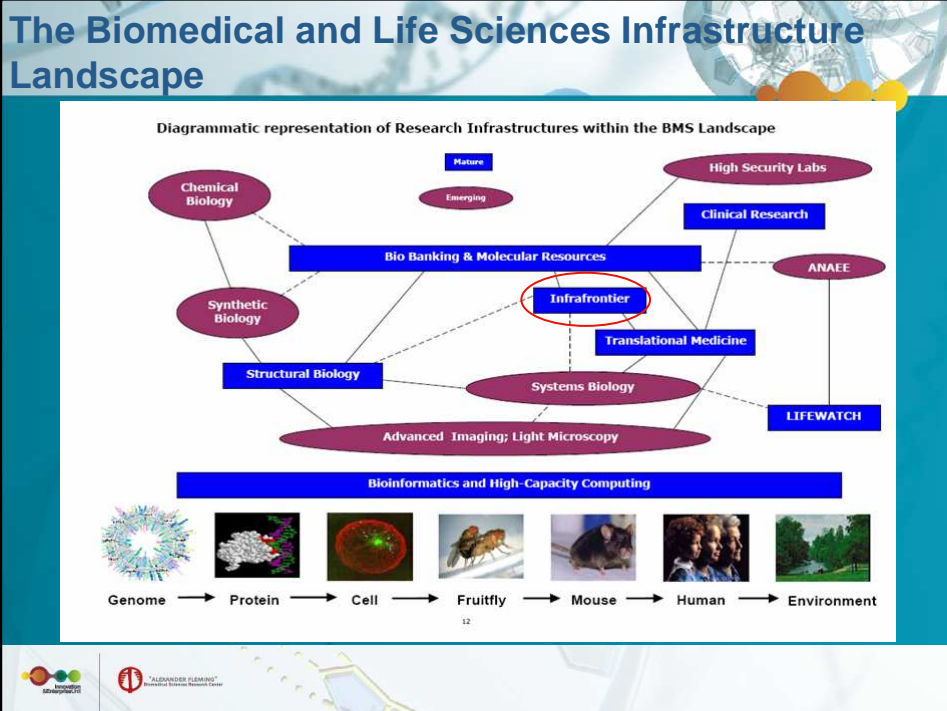
The European Infrastructure for
phenotyping, archiving and dissemination
of disease (mouse) models

- Germany: GSF; HZI
- UK: MRC/MGU, Wellcome Trust Sanger; EBI
- France: ICS, CDTA/CDTA
- Italy: CNR; Government
- Sweden: Karolinska
- Spain: Univ. Barcelona; Madrid
- Portugal: Gulbenkian Institute
- Greece: Fleming Center
- Finland: Biocenter Oulu



European Strategy Forum
on Research Infrastructures





The future

- Participation in European Research Infrastructures, e.g. Infrafrontier
- Implementation of the entire drug discovery and development process
- Business development through IP portfolios, spin-out companies
- Biotechnopolis



Innovation & Enterprise Unit

- Formerly Technology Transfer Office
- Established in 2005 with GSRT Grant
 - Now funded directly via Fleming
- Responsible for:
 - Management of Fleming IP
 - Business Development Activities for Fleming IP
 - Negotiation of R&D contracts
 - Material Transfer Agreements
 - Contract Research
 - Collaborative Research
 - Service Agreements etc
 - More than 300 agreements managed in the last 3 years



Innovation & Enterprise Unit

Achievements

- Patent portfolio around 2 technologies
 - License for one patent under negotiation
 - Other patent applications under consideration
- Supported establishment of BioMedCode, Fleming's first spin-out company
- Established working relationship with several big pharmas via major Biotech conference
 - Negotiating collaborative deals now!
 - Maintain contact with others for the future...



THE ALEXANDER FLEMING BIOTECHNOPOLIS



- Second building for Fleming's Research Institutes, Facilities and European Research Infrastructures
- New research centers with complementary research activities
- Biobusiness park, incubator space, tech transfer services
- Science in Society Cultural Center, housing the Alexander Fleming Museum, Science Sculpture Park, Conference Center facilities

