



Biomedical Sciences Research Center “Alexander Fleming”

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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*)
 - Stem cell biology (*Remboutsika*)
 - Neurobiology of learning and memory, neurodegeneration (*Skoulakis*)
- Institute of Molecular Oncology
 - Signaling pathways in cancer (*Panayotou*)
 - Hematopoiesis and leukemia (*Strouboulis*)
 - microRNA bioinformatics (*Hatzigeorgiou*)
- Cell & Developmental Biology
 - Minos transposon-based transgenesis and mutagenesis in insects and in mammals (*Savakis*)

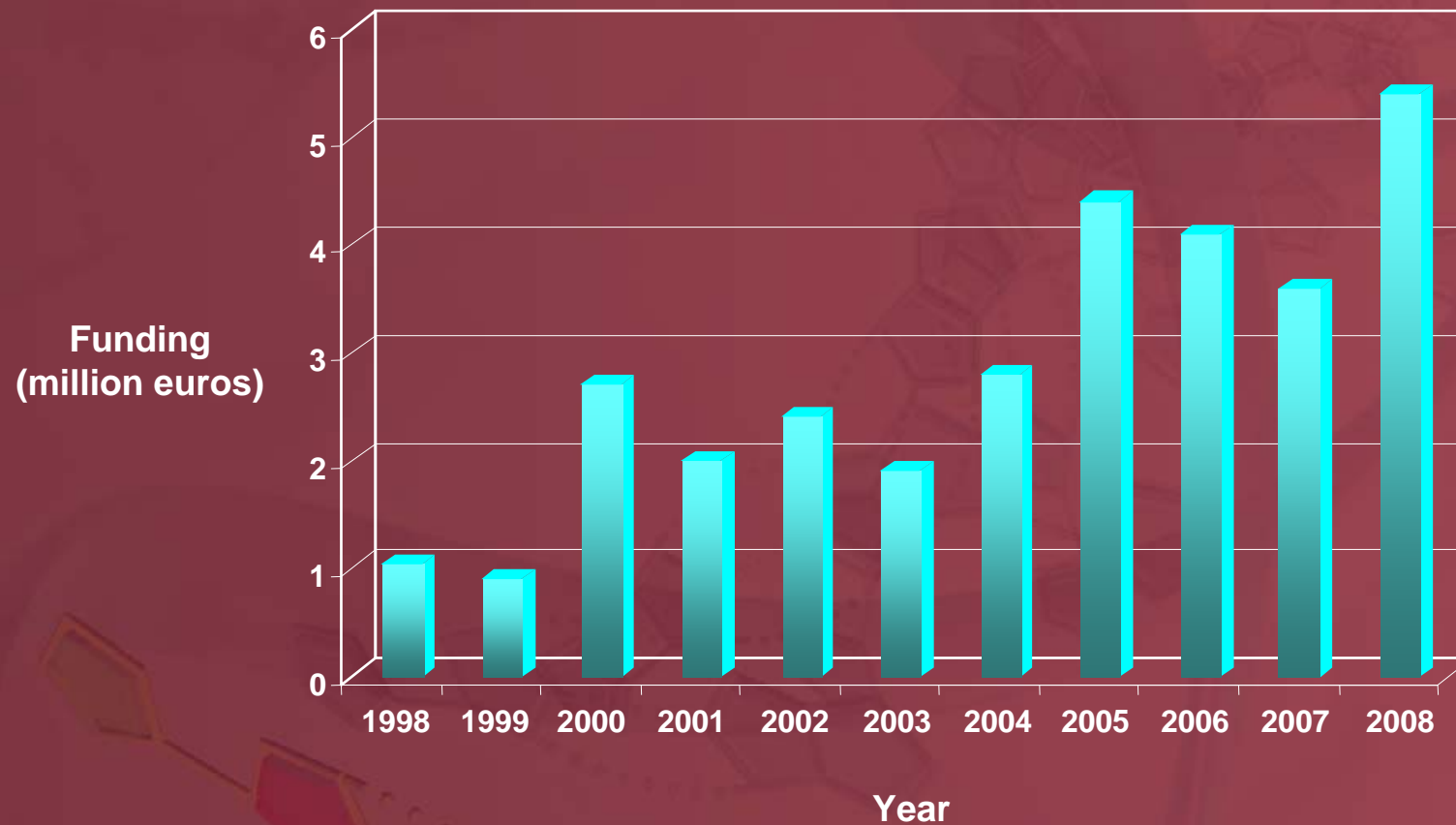
Fleming Service Units and Facilities

- 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

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

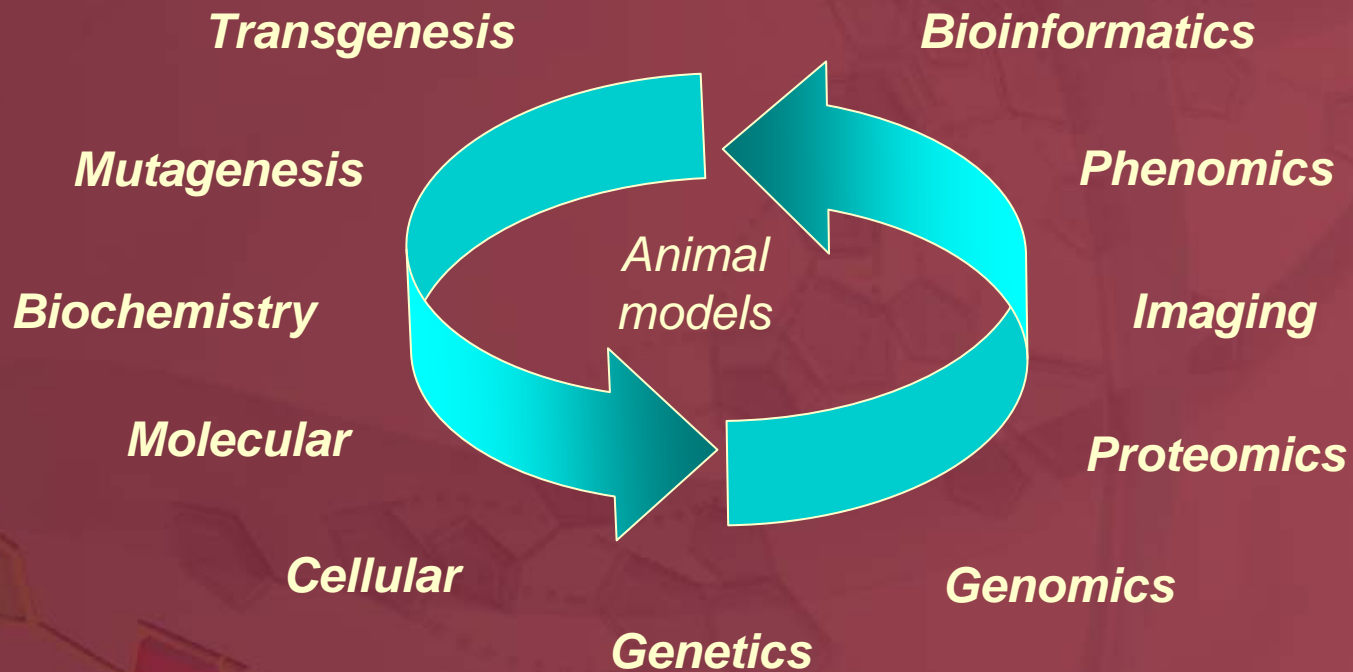
Our Funding



How we do it: Technology Platforms

Functional Genetics

Functional Genomics





Specific Fleming Technologies

Specific Fleming Technologies

1. Drug Screening Assay for RA
2. VASP: a new target for arthritis
3. HO1/IRF3 in infectious and immune disease
4. Post-Transcriptional regulators in inflammation and cancer
5. Autotaxin: a new target for inflammation & cancer
6. Cognitive Disorders: early intervention

Drug Screening Assay for RA

- Actin based using synovial fibroblasts from proprietary arthritic mice overexpressing TNF
- Advantages:
 - Fast, easy, excellent SNR, Reproducible
 - Works with known RA drugs
- Product Opportunity to:
 - Use in drug screening
 - develop a diagnostic assay for arthritis
- Disease Hubs
 - Arthritis (especially Rheumatoid, Juvenile and Osteoarthritis), Ankylosing Spondylitis, Lupus and Autoimmune Disease
- Patent application in US, Japan, Europe

VASP – New Target for Arthritis

- VASP upregulated in SF's of arthritic mice
- VASP deletion ameliorates arthritis
- siRNA-mediated knockdown of VASP in arthritic SF cells reverses adverse phenotype
- VASP KO mice are viable, fertile and normal
- Product Opportunity:
 - New RA treatments
 - VASP related products
 - Actin targeting inhibitors
- Patent application in US

HO1/IRF3 in Infectious & Immune Disease

- HO1 interacts with and activates IRF3
- IRF3 activates IFN- β
 - HO1 in early activation of IFN type 1 pathway
- Functionally different to CO pathway
- HO1/IRF3 interaction as new target
- Product Opportunity
 - Screening assay
 - HO1 inhibitors & activators
 - IRF3 modulators
 - TLR3 & TLR4 based therapeutics
- Patent application in US

Post-Transcriptional Regulators in Inflammation & Cancer

- RNA binding proteins implicated in inflammation and cancer
 - Elavl1/HuR and AUF1
- Drug candidate screening protocol
 - Transgenic (KO) mouse
 - Tissue analysis
 - Pathology assessment in animal model
 - Ex-vivo cellular assay
 - Gene expression analysis
- Patent application in US

Autotaxin (ATX): a new target in inflammation & cancer

- Secreted glycoprotein, controls LPA
- Elevated LPA in Cancer, Arthritis, Alzheimer's, MS
- Fleming tools:
 - KO and transgenic mice
 - Monoclonal antibodies
 - Elisa and activity assays
- Product Opportunity
 - Development and testing of ATX inhibitors
 - New therapeutic target
 - Diagnostic/prognostic tool for chronic inflammatory tools, cancer and neurodegeneration

Cognitive Disorders: Early Intervention

- Tau related disorders
 - Alzheimer's, Dementias, Fragile X, ADHD
- Proteins that modulate activity of kinases targeting Tau
- Assay for pharmaceutical reversal of behavioral symptoms of mobility disorders
- Use of *Drosophila* for:
 - Small molecule drug delivery studies
 - Genetic studies in learning & memory
- Product Opportunity
 - Candidate molecules for Tau and learning (fragile X) disorders



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EARLY PHASE

LATE PHASE

