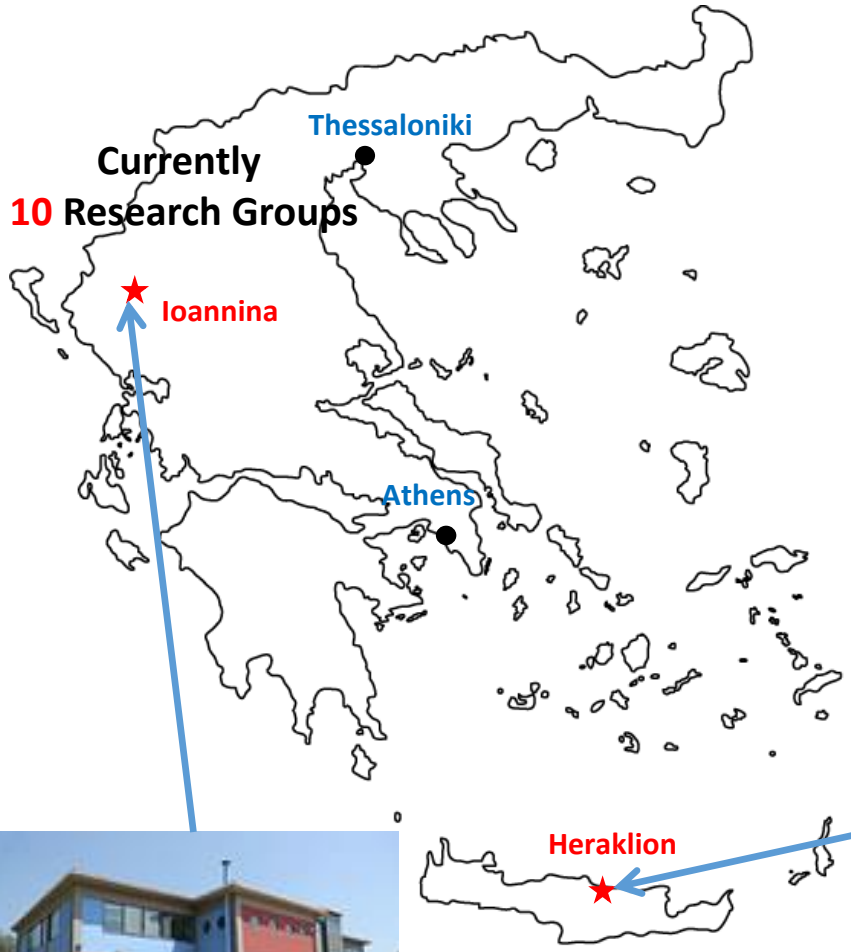
Foundation for Research and Technology-Hellas
-FORTH-

Institute of Molecular Biology & Biotechnology
-IMBB-

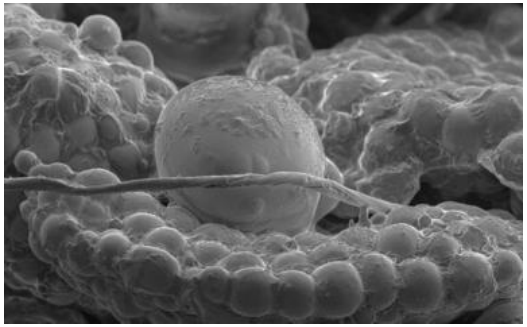
Heraklion, Crete, Greece

IMBB - FORTH

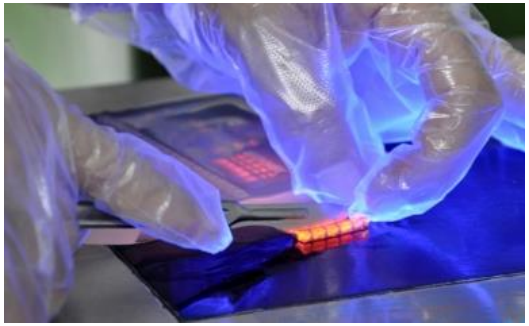


Heraklion, Crete & Ioannina, Epirus

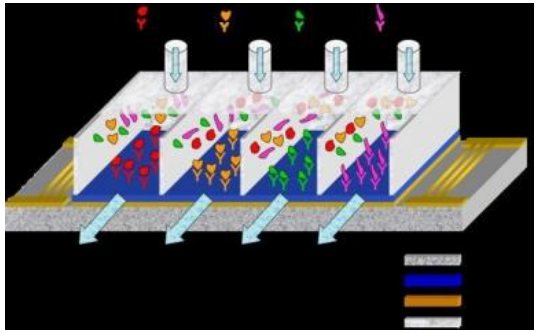
Current Research Activities at IMBB



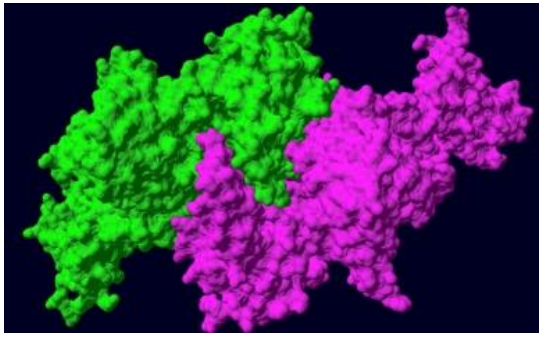
NEUROSCIENCES
- Neural Development
- Computational Neuroscience
- Neurogenetics & Neuronal Ageing



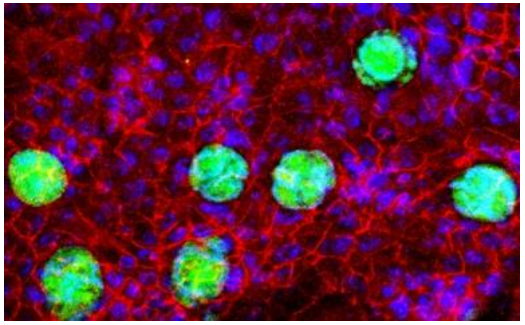
DEVELOPMENT & GENE EXPRESSION
- Gene Regulation / Epigenetics
- Chromatin & Gene Expression
- Plant Biology



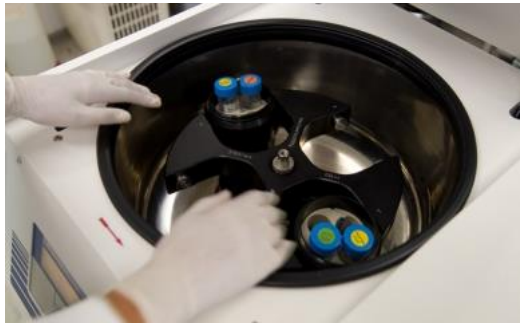
NANO / BIOTECHNOLOGY
- Biosensors
- Enzyme Technology & Genomics



STRUCTURAL BIOLOGY
- Protein Trafficking
- Protein Structure



INFECTIONS & IMMUNITY
- Pest & Disease Control
- Cellular & Molecular Immunology
- Inflammation & Cancer

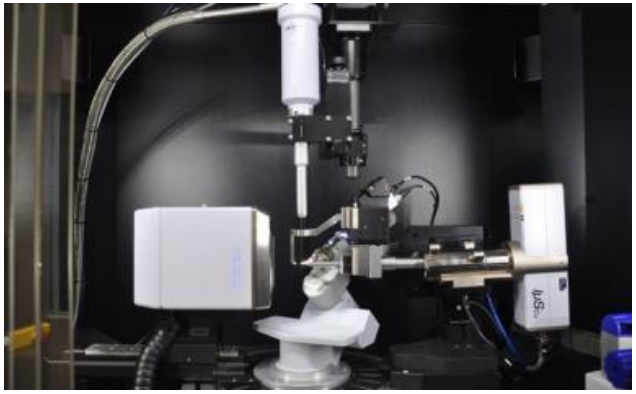


BIOMEDICAL RESEARCH (Ioannina)
- Endothelial Biology
- Epigenetics
- Stem Cells/Differentiation
- Meta-analysis

IMBB Facilities

Cells & Animals

Animal House, Gene Targeting Facility, Flyroon-Insectarium, Electrophysiology Unit, FACS-sorting, Histology Lab, Stem Cell Lab

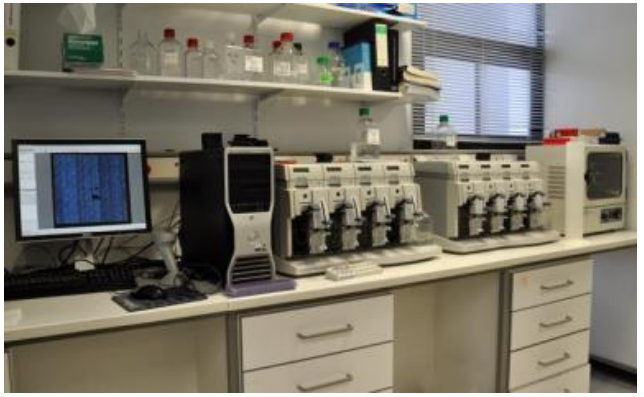


Molecular Analysis

Fermentation, Protein Purification, Protein Crystallography Services, Biomolecule Analysis, Biophysical Analysis - Biosensors

Biological Imaging

Multiphoton Microscopy, Confocal Microscopy, Advanced Cell Imaging, Gel Imaging



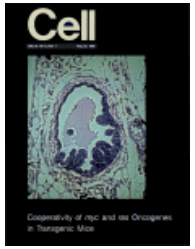
Omics

Proteomics, Next Generation Sequencing

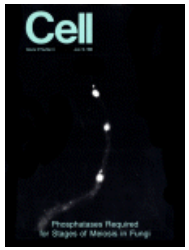
IMBB Researchers and Achievements

- **5** awarded **ERC grants**
- **8** IMBB Researchers elected **EMBO members**
- **5 EMBO Young Investigator** Awards

… since its establishment					
Publications	**Citations**	**Cit/Pub**	**Pub/Res/Y**	**Patents**	**PhD**
3.481	140.344	40,32	1,51	22	207



Yannopoulos G. et al (1987)



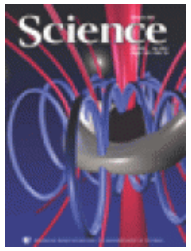
Tzamarias D. et al (1989)

Loukeris Tg. et al (1995)

Ktistaki E. et al (1997)

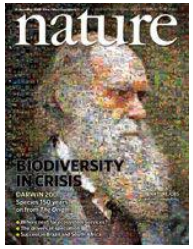
Syntichaki P. et al (2000)

Syntichaki P. et al (2002)



Soutoglou E. et al (2002)

Syntichaki P. et al (2007)



Gouridis G. et al (2009)

Artal-Sanz M. et al (2009)

Sarrazin AF. Et al (2012)

Kourtis N. et al (2012)

Konstantinides N. et al (2014)

Palikaras K. et al (2015)

Cell – Nature- Science

14 / 18

Nat Struct Mol Biol; Nat Gen; Nat Cell Biol; Mol Cell; Dev Cell; Curr. Biol; Cell Met; Cancer Cell; Immunity; Genes Dev; EMBO J; Development; J Cell Biol; PNAS; J Exp Med; J Clin Inv

60 / 95

IMBB / Greece total

primary publications in Biomedical Sciences

Contribution to International Genome Sequencing projects

Galibert F, Alexandraki D, ... Katsoulou C, ... Tzermia M, ... Karpfinger-Hartl L. (1996) Complete nucleotide sequence of Saccharomyces cerevisiae chromosome X. EMBO J. 15:2031-49

Dujon, B.,..Alexandraki D, … C.,..Tzermia,..and Kleine, K. (1997) The complete nucleotide sequence of Saccharomyces cerevisiae chromosome XV. Nature 387:98-102

Goffeau A., … Alexandraki D., … Horaitis O., … G. Thireos, … Tzermia M. (1997) The yeast genome directory. Nature 387 (suppl.)

Bentley Dr, … Moschonas NK, … et al. (2001) The physical maps for sequencing human chromosomes 1, 6, 9, 10, 13, 20 and X. Nature 409:942-43

Deloukas P, … Moschonas NK, … et al. (2004) The DNA sequence and comparative analysis of human chromosome 10. Nature 429:375-81

Benos Pv, … Louis C, et al. (2000) From Sequence To Chromosome: The Tip Of The X Chromosome Of D. Melanogaster. Science 287:2220-22

Adams MD, …… Amanatides PG, … Ashburner M, … Siden-Kiamos I, … Rubin GM, Venter JC. (2000) The genome sequence of Drosophila melanogaster. Science 287:2185-95

Zdobnov Em, … Louis C, … et al. (2002) Comparative genome and proteome analysis of Anopheles gambiae and Drosophila melanogaster. Science 298:149-59

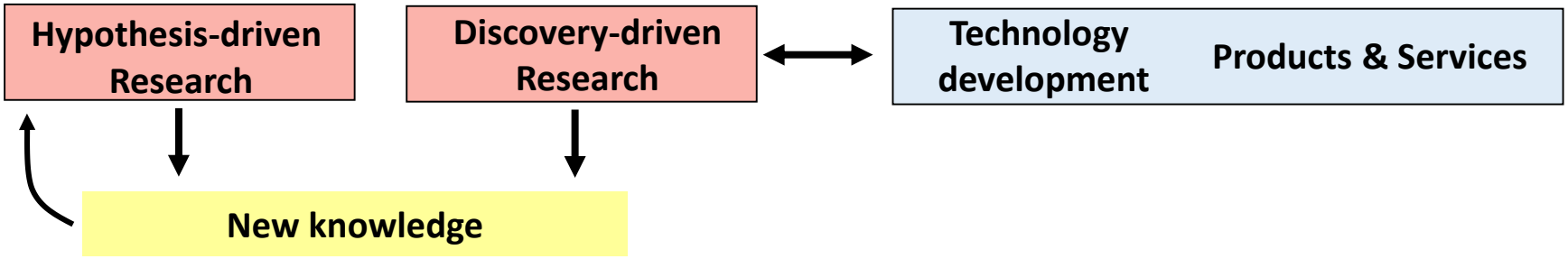
Holt Ra, … Louis C, … et al. (2002) The genome sequence of the malaria mosquito Anopheles gambiae. Science 298:129-49

Christophides GK, Zdobnov E, … Loukeris TG, Lycett G, ... Vlachou D, … Kafatos FC. (2002) Immunity-related genes and gene families in Anopheles gambiae. Science 298:159-65

Neafsey DE, et al., . (2015) Mosquito genomics. Highly evolvable malaria vectors: the genomes of 16 Anopheles mosquitoes. Science; 347:1258522.

IMBB Current and Future Challenges

IMBB aims at conducting frontier research in specific fields of modern **Biology**



Funding – Facilities – Critical mass of Researchers – Multidisciplinary Research

Cancer Cell

Volume 2, Issue 3 September 2002

Authors/paper : 3-8 (avg: 5.3)

Distinct BH3 domains either sensitize or activate mitochondrial apoptosis, serving as prototype cancer therapeutics

Anthony Letai, Michael C. Bassik, Loren D. Walensky, Mia D. Sorcinelli, Solly Weiler, Stanley J. Korsmeyer

BAX and BAK mediate p53-independent suppression of tumorigenesis

Kurt Degenhardt, Guanghua Chen, Tullia Lindsten, Eileen White

β4 integrin-dependent formation of polarized three-dimensional architecture confers resistance to apoptosis in normal and malignant mammary epithelium

Valerie M Weaver, Sophie Lelièvre, Johnathon N Lakins, Micah A Chrenek, Jonathan C.R Jones, Filippo Giancotti, Zena Werb, Mina J Bissell

Transforming properties of a Q18→E mutation of the microtubule regulator Op18

David E Misek, Christina L Chang, Rork Kuick, Robert Hinderer, Thomas J Giordano, David G Beer, Samir M Hanash

The oncogenic potential of Kaposi's sarcoma-associated herpesvirus cyclin is exposed by p53 loss in vitro and in vivo

Emmy W. Verschuren, Juha Klefstrom, Gerard I. Evan, Nic Jones

Stable suppression of tumorigenicity by virus-mediated RNA interference

Thijn R Brummelkamp, René Bernards, Reuven Agami

Cancer Cell

Volume 32, Issue 3 September 11, 2017

Authors/paper : 12-53 (avg: 26.0)

Articles

Identification of GPC2 as an Oncoprotein and Candidate Immunotherapeutic Target in High-Risk Neuroblastoma

Kristopher R. Bosse, Pichai Raman, Zhongyu Zhu, Maria Lane, Daniel Martinez, Sabine Heitzeneder, Komal S. Rathi, Nathan M. Kendsersky, Michael Randall, Laura Donovan, Sorana Morrissy, Robyn T. Sussman, Doncho V. Zhelev, Yang Feng, Yanping Wang, Jennifer Hwang, Gonzalo Lopez, Jo Lynne Harenza, Jun S. Wei, Bruce Pawel, Tricia Bhatti, Mariarita Santi, Arupa Ganguly, Javed Khan, Marco A. Marra, Michael D. Taylor, Dimiter S. Dimitrov, Crystal L. Mackall, John M. Maris

LMO1 Synergizes with MYCN to Promote Neuroblastoma Initiation and Metastasis

Shizhen Zhu, Xiaoling Zhang, Nina Weichert-Leahey, Zhiwei Dong, Cheng Zhang, Gonzalo Lopez, Ting Tao, Shuning He, Andrew C. Wood, Derek Oldridge, Choong Yong Ung, Janine H. van Ree, Amish Khan, Brittany M. Salazar, Edroaldo Lummertz da Rocha, Mark W. Zimmerman, Feng Guo, Hong Cao, Xiaonan Hou, S. John Weroha, Antonio R. Perez-Atayde, Donna S. Neuberg, Alexander Meves, Mark A. McNiven, Jan M. van Deursen, Hu Li, John M. Maris, A. Thomas Look

Increased Vascular Permeability in the Bone Marrow Microenvironment Contributes to Disease Progression and Drug Response in Acute Myeloid Leukemia

Diana Passaro, Alessandro Di Tullio, Ander Abarrategi, Kevin Rouault-Pierre, Katie Foster, Linda Ariza-McNaughton, Beatriz Montaner, Probir Chakravarty, Leena Bhaw, Giovanni Diana, François Lassailly, John Gribben, Dominique Bonnet

A Dual Role of Caspase-8 in Triggering and Sensing Proliferation-Associated DNA Damage, a Key Determinant of Liver Cancer Development

Yannick Boege, Mohsen Malehmir, Marc E. Healy, Kira Bettermann, Anna Lorentzen, Mihael Vucur, Akshay K. Ahuja, Friederike Böhm, Joachim C. Mertens, Yutaka Shimizu, Lukas Frick, Caroline Remouchamps, Karun Mutreja, Thilo Kähne, Devakumar Sundaravinayagam, Monika J. Wolf, Hubert Rehrauer, Christiane Koppe, Tobias Speicher, Susagna Padrissa-Altés, Renaud Maire, Jörn M. Schattenberg, Ju-Seong Jeong, Lei Liu, Stefan Zwirner, Regina Boger, Norbert Hüser, Roger J. Davis, Beat Müllhaupt, Holger Moch, Henning Schulze-Bergkamen, Pierre-Alain Clavien, Sabine Werner, Lubor Borsig, Sanjiv A. Luther, Philipp J. Jost, Ricardo Weinlich, Kristian Unger, Axel Behrens, Laura Hillert, Christopher Dillon, Michela Di Virgilio, David Wallach, Emmanuel Dejardin, Lars Zender, Michael Naumann, Henning Walczak, Douglas R. Green, Massimo Lopes, Inna Lavrik, Tom Luedde, Mathias Heikenwalder, Achim Weber

Chronic Cigarette Smoke-Induced Epigenomic Changes Precede Sensitization of Bronchial Epithelial Cells to Single-Step Transformation by *KRAS* Mutations

Michelle Vaz, Stephen Y. Hwang, Ioannis Kagiampakis, Jillian Phallen, Ashwini Patil, Heather M. O'Hagan, Lauren Murphy, Cynthia A. Zahnow, Edward Gabrielson, Victor E. Velculescu, Hariharan P. Easwaran, Stephen B. Baylin

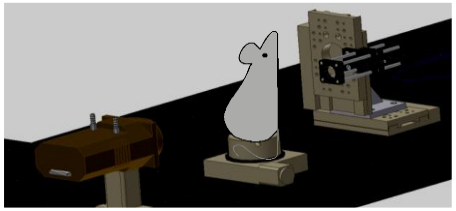
Enhancing CD8$^+$ T Cell Fatty Acid Catabolism within a Metabolically Challenging Tumor Microenvironment Increases the Efficacy of Melanoma Immunotherapy

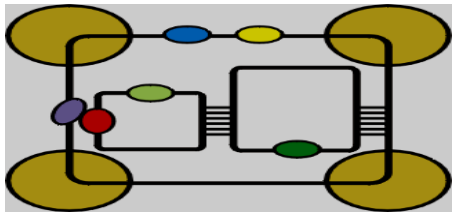
Ying Zhang, Raj Kurupati, Ling Liu, Xiang Yang Zhou, Gao Zhang, Abeer Hudaihed, Flavia Filisio, Wynetta Giles-Davis, Xiaowei Xu, Giorgos C. Karakousis, Lynn M. Schuchter, Wei Xu, Ravi Amaravadi, Min Xiao, Norah Sadek, Clemens Krepler, Meenhard Herlyn, Gordon J. Freeman, Joshua D. Rabinowitz, Hildegund C.J. Ertl

Fields of opportunity. Needs and focus for the coming years

Bio-imaging
Nanobiotechnology

IESL

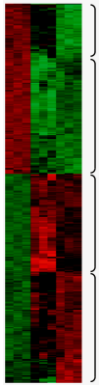


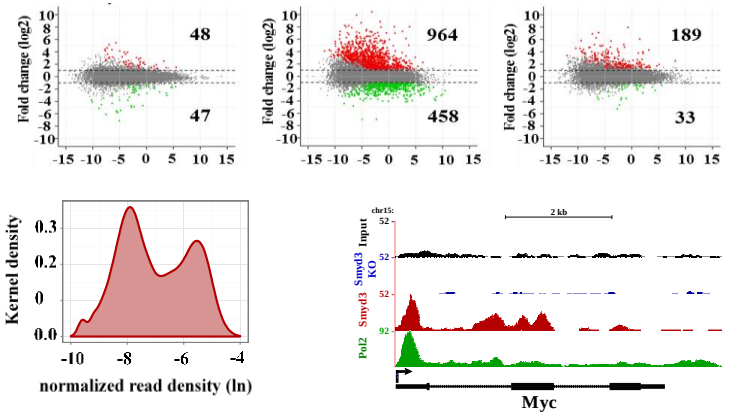


High Risk – High Gain

Bioinformatics

ICS - IACM





Low Risk – High Gain

IMBB-FORTH

Our aspiration:
Maintain IMBB as a favorable environment,
for frontier research in biomedical sciences

Tighter collaborations with labs at FORTH Institutes