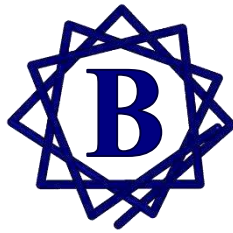




Romanian Academy



1952 - 2022

Institute of Biochemistry

advancing the frontiers of knowledge in modern biology

<http://www.biochim.ro>

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Overview

Mission statement. The Institute of Biochemistry of the Romanian Academy, IBAR, aims:

- *to lead cutting edge research in molecular life sciences to the advantage of the society;*
- *to educate MSc & PhD students and post-docs in biochemistry and applied biosciences.*
- *to promote protein science by undertaking projects related to protein function, synthesis and transport with high practical impact in biomedicine, nano- & bio-technologies.*

Brief History. The Institute of Biochemistry was founded in 1952 by Prof. Eugen Macovschi, member of the Romanian Academy as part of the Romanian Academy Institutes Network. In 1972 the Institute was integrated into the Central Institute of Biology and then re-established as an independent public unit by Dr. Cecilia Motaş in 1990, to activate ever since under the aegis of the Romanian Academy as a *Centre of Research and Advanced Education in Molecular Life Sciences and Protein Biosynthesis & Function.*

the founders



Eugen Macovschi



Cecilia Motaş

In 1998 IBAR was the first Romanian research institution to set off an international peer reviewing program granted by the NATO Scientific Division, under the auspices of the Romanian Academy, with a recall in 2000.

This led to a significant restructuring and refocus reflected in the quality of research which has set new standards to the Romanian biological and medical research. Confirmation came in 2008, when IBAR ranked first at national level in relation to primary criteria /high impact publications/, and overall second behind the "*Octav Mayer*" Institute of Mathematics, in the Accreditations process of the Romanian Research Institutions conducted by ANCS, as stated in the ANCS Decision 9634 from 14.04.2008. In recognition, IBAR was awarded the Award for Excellence in Romanian Research in 2008.

Current Activity. IBAR currently carries the research program:

"Molecular Recognition, Signaling and Control Mechanisms in Biological Systems"

structured on the following directions:

- *Cellular pathways of protein biosynthesis and transport*
- *Cellular pathways of viral infections and molecular strategies for prevention*
- *Cellular signaling cascades and the structure and role of signaling enzymes;*
- *In silico structural biology correlated with experiment*
- *Protein interactions and bionanotechnologies*

IBAR carried and carries also advanced educational programs in the molecular cell biology of protein biosynthesis and traffic such as: -a) the MSc Program in *Biological Chemistry* of the Superior Normal School, SNS Bucharest, -b) the PhD programs in *Biochemistry* and *Molecular Cell Biology* of the School of Advanced Studies of the Romanian Academy, SCOSAAR; -c) the international advanced courses in the *Recombinant DNA Technology* granted by FEBS. These programs seem quite attractive, if judged by the number of attendees and their evaluation. In recognition, in 2010, IBAR was granted from the European Social Fund 4M € for coordinating an Educational Consortium that carries the Post Doctoral Program "*Cellular and Molecular Biotechnologies for Medical Application*", 2010-2013. This Program produced so far 96 research articles in journals with an overall impact factor IF > 180.

Due to the influx of young researchers, IBAR has an average age of the research staff around 40. The fine balance of youth and experience reflected on the results, and made this Centre internationally recognized. For instance, since 1993 IBAR has a unique, special relation with the University of Oxford, and collaborates with many other advanced research centers in US and EU such as the Universities of Yale, Berkeley, Davis, Illinois IT, Lausanne, Wageningen or Göteborg and Institutes such as Max Plank, NIH Bethesda or INRA.

Along the past three decades many members of IBAR understood to take responsibilities in serving the Romanian biochemists research and education community at national and European level by organizing the Romanian Biochemistry and Molecular Biology Society, its meetings, advanced and permanent education courses, and by representing Romania in FEBS or other international scientific or evaluation bodies. In addition, over the past two difficult years, 2020-2021, many members of IBAR took action in fighting Covid-19 by working or training pro bono personnel in hospital virus testing units, or by undertaking research for rapid Covid-19 test development and antibody generation.

IBAR Structure

Board

<i>Director:</i>	Stefana M.Petrescu	Stefana.Petrescu@biochim.ro
<i>Deputy Director:</i>	Norica Branza-Nichita	Norica.Nichita@biochim.ro

Departments: *Molecular Cell Biology; Molecular Virology; Bioinformatics & Biocomputing; Enzymology; Applied bio-nano-technologies.*

Personnel

Positions	
Researchers	27
Research Assitants	15
Administration	6
Total	48
PhD Students	28

PostDoc Program "Cellular and Molecular Biotechnologies for Medical Applications":
Co-ordinator Stefana M.Petrescu

SCOSAAR PhD Programs:

Molecular Cell Biology
Molecular Virology
Enzymology & Molecular Biology
Bioinformatics & Biocomputing

Stefana M.Petrescu
 Norica Nichita
 Stefan E.Szedlacsek
 Andrei-J. Petrescu

Members in International Organizations

ERC: European Research Council
Development Cell Biology Panel 2008 - 2014

Stefana M.Petrescu

ESFRI: European Strategy Forum on Research Infrastructures
Life Science Pannel 2006 - 2009

Stefana M.Petrescu

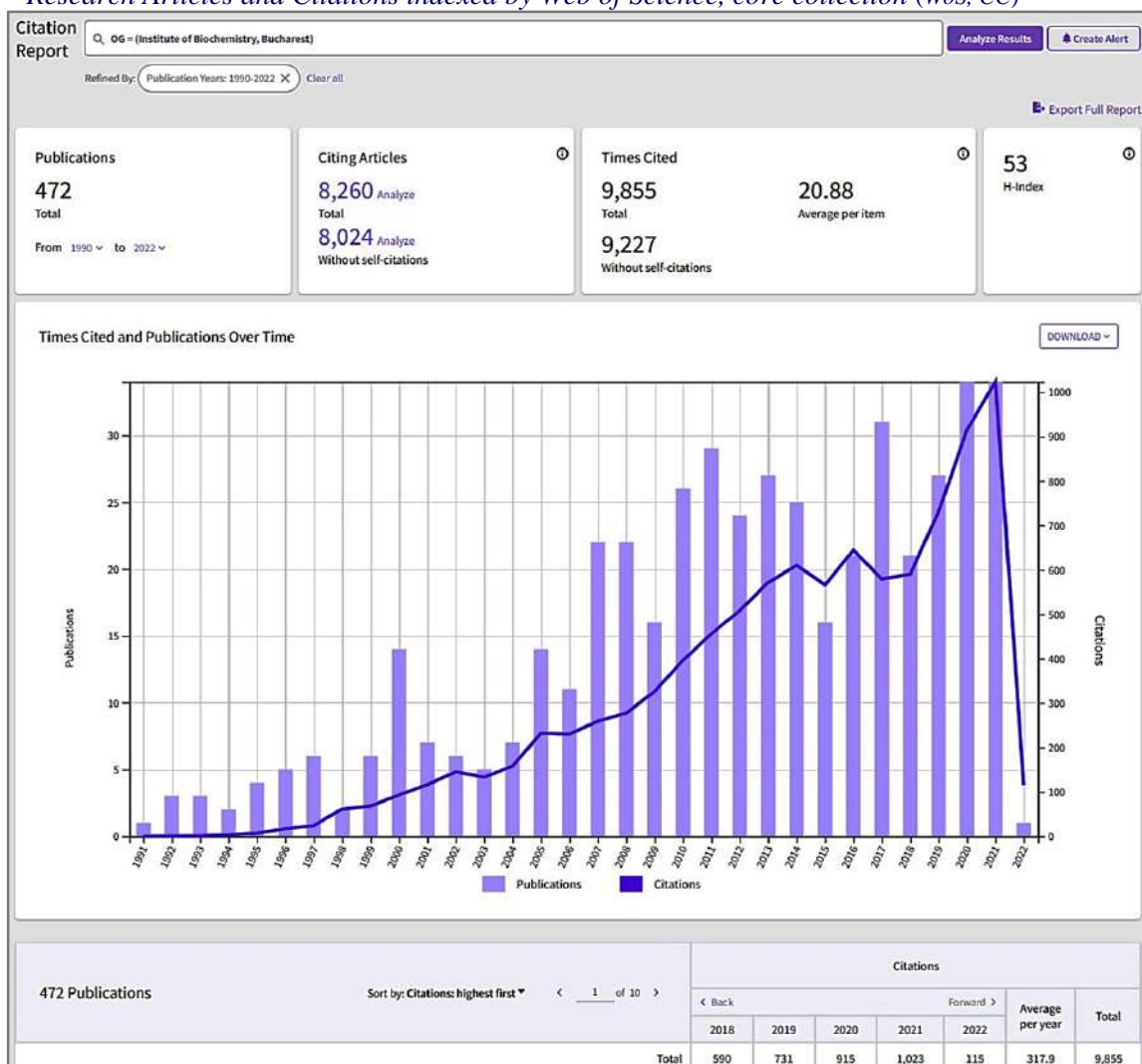
ELIXIR: European Bioinformatics Infrastructure
Bioinformatics Communities Committee 2007 - 2009

Andrei-J Petrescu

IBAR Activities in a nut shell

Research at a Glance

Research Articles and Citations indexed by Web of Science, core collection (WoS, CC)



		2017	2018	2019	2020	2021	Tot
Publications	ISI-Publications	31	21	27	34	34	>145
	<i>Overall Impact Factor (ISI)</i>	>70	>60	>120	>107	>120	>475
Visibility	Overall IBAR Citations (ISI)	585	590	731	915	1023	>3800
Grants	International	11	10	9	9	11	^{av} 10
	Domestic	14	25	24	22	19	^{av} 21
Education*	PhD Students	17	24	20	23	25	^{av} 22

IBAR researchers with international visibility

researchers that fulfill also the habilitation criteria for PhD coordination

		ISI Papers	Citations*	H-Index*	Status
1.	Stefana M. Petrescu	75	> 2500	26	CP1
2.	Norica Branza-Nichita	57	> 1600	23	CP1
3.	Andrei-J Petrescu	60	> 2800	27	CP1
4.	Anca Roseanu	50	> 1000	15	CP1
5.	Gabriela Negroiu	40	> 850	15	CP1
6.	Stefan E.Szedlacsek	55	> 800	14	CP1
7.	Trif Mihaela	20	> 700	12	CP1
8.	Robi Tacutu	30	> 1300	17	CP2
9.	Livia E. Sima	60	> 900	18	CP2
10.	Lazar Catalin	30	> 450	13	CP2
11.	Ionut-Costin Popescu	20	> 500	9	CP2
12.	Sorin Tunaru	25	>1900	17	CP3
13.	Laurentiu Spiridon	25	> 750	13	CP3
14.	Cristian V.Munteanu	27	> 200	7	CP3

* according to Web of Science, all databases: WoS all DB

IBAR research articles with over 100 citations (WoS, all DB)

- 1 Petrescu AJ; Milac AL; Petrescu SM; Dwek RA; Wormald MR, "Statistical analysis of the protein environment of N-gly sites: implications for occupancy, structure & folding" *Glycobiology* **14** 103-114 (2004) 356
- 2 Wormald MR; Petrescu AJ; Pao YL; Glithero A; Elliott T; Dwek RA, "Conformational studies of oligosaccharides and glycopeptides: Complementarity of NMR, X-ray crystallography, and molecular modelling" *Chem.Rev.* **102** 371-386 (2002) 337
- 3 Saldova R; Royle L; Radcliffe CM; Hamid UMA; Evans R; Arnold JN; Banks RE; Hutson R; Harvey DJ; Antrobus R; Petrescu SM; Dwek RA; Rudd PM, "Ovarian cancer is associated with changes in glycosylation in both acute-phase proteins and IgG", *Glycobiology* **17** 1344-1356 (2007) 306
- 4 Haversen L; Ohlsson BG; Hahn-Zoric M; Hanson LA; Mattsby-Baltzer I, "Lactoferrin down-regulates the LPS-induced cytokine production in monocytic cells via NF-kappa B", *Cell.Immunol.* **220** 83-95 (2002) 242
- 5 Maekawa T; Cheng W; Spiridon LN; Toeller A; Lukasik E; Saijo Y; Micluta M A; Somssich I E; Takken FLW; Petrescu A-J; Chai J; Schulze-Lefert P, "Coiled-Coil Domain-Dependent Homodimerization of Intracellular Barley Immune Receptors Defines a Minimal Functional Module for Triggering Cell Death" *Cell Host & Microbe* **9** 187-199 (2011) 199

- 6 Hinsen K; Petrescu AJ; Dellerue S; Bellissent-Funel MC; Kneller GR, "Harmonicity in slow protein dynamics", *Chemical Phys.* **261** 25-37 (2000) 180
- 7 Zapun A; Petrescu SM; Rudd PM; Dwek RA; Thomas DY; Bergeron JJM, "Conformation-independent binding of monoglucosylated ribonuclease B to calnexin", *Cell* **88** 29-38 (1997) 174
- 8 Plati J; Bucur O; Khosravi-Far R, "Apoptotic cell signaling in cancer progression and therapy", *Integrative Biology* **3** 279-296 (2011) 171
- 9 Tacutu R; Thornton DI; Johnson E; Budovsky A; Barardo D; Craig T; Diana E; Lehmann G; Toren D; Wang J; Fraifeld V; deMagalhaes J, "Human Ageing Genomic Resources: new and updated databases", *Nucl.Acid.Res.* **46** D1083-1090 (2018) 166
- 10 Helle F; Vieyres G; Elkrief L; Popescu C-I; Wychowski C; Descamps V; Castelain S; Roingeard P; Duverlie G; Dubuisson J, "Role of N-Linked Glycans in the Functions of Hepatitis C Virus Envelope Proteins Incorporated into Infectious Virions", *J.Virology* **84** 11905-11915 (2010) 154
- 11 Neeft M; Wieffer M; de Jong AS; Negroiu G; Metz CHG; van Loon A; Griffith J; Krijgsveld J; Wulffraat N; Koch H; Heckt AJR; Brose N; Kleijmeer M; van der Sluijs P, "Munc13-4 is an effector of Rab27a and controls secretion of lysosomes in hematopoietic cells", *Mol. Biol.Cell* **16** 731-741 (2005) 153
- 12 Ganea E; Harding JJ, "Glutathione-related enzymes and the eye", *Current Eye Res.* **31** 1-11 (2006) 143
- 13 MattsbyBaltzer I; Roseanu A; Motas C; Elverfors J; Engberg I; Hanson LA, "Lactoferrin or a fragment thereof inhibits the endotoxin-induced interleukin-6 response in human monocytic cells", *Pediatric Res.* **40** 257-262 (1996) 135
- 14 Durantel D; Branza-Nichita N; Carroue-Durantel S; Butters TD; Dwek RA; Zitzmann N, "Study of the mechanism of antiviral action of iminosugar derivatives against bovine viral diarrhoea virus", *J.Virology* **75** 8987-8998 (2001) 134
- 15 Popescu CI; Callens N; Trinel D; Roingeard P; Moradpour D; Descamps V; Duverlie G; Penin F; Heliot L; Rouille Y; Dubuisson J, "NS2 Protein of Hepatitis C Virus Interacts with Structural and Non-Structural Proteins towards Virus Assembly", *PLoS Pathogens* **7** e1001278 (2011) 122
- 16 Sloopweg E; Roosien J; Spiridon LN; Petrescu A-J; Tameling W; Joosten M; Pomp R; van Schaik C; Dees Robert; B JW; Smant G; Schots A; Bakker J; Goverse A, "Nucleocytoplasmic Distribution Is Required for Activation of Resistance by the Potato NB-LRR Receptor Rx1 and Is Balanced by Its Functional Domains", *Plant Cell* **22** 4195-4215 (2010) 122
- 17 Plati J; Bucur O; Khosravi-Far R, "Dysregulation of apoptotic signaling in cancer: Molecular mechanisms and therapeutic opportunities", *J.Cell. Biochem.* **104** 1124-1149 (2008) 120
- 18 Tabernero L; Aricescu AR; Jones EY; Szedlaczek SE, "Protein tyrosine phosphatases: structure-function relationships", *Febs Journal* **275** 867-882 (2008) 110
- 19 Szedlaczek SE; Duggleby Rg, "Kinetics Of Slow And Tight-Binding Inhibitors", *Enzyme Kin.& Mech.*, **249** 144-180 (1995) 110
- 20 Petrescu AJ; Petrescu SM; Dwek RA; Wormald MR, "A statistical analysis of N- and O-glycan linkage conformations from crystallographic data", *Glycobiology* **9** 343-352 (1999) 106

IBAR research articles in high profile journals (IF > 10 or AI > 5)

	AIS	FI
Zhang Y, Cheng TC, Huang G, Lu Q, <u>Surleac MD</u> , Mandell JD, Pontarotti P, <u>Petrescu AJ</u> , Xu A, Xiong Y, Schatz DG. "Transposon molecular domestication and the evolution of the RAG recombinase.", <i>Nature.</i> 569 :79-84 (2019).	22.0	41.0
Zapun A, <u>Petrescu SM</u> , Rudd PM, Dwek RA, ...,Bergeron JJ. "Conformation-independent binding of monoglucosylated ribonuclease B to calnexin." <i>Cell.</i> 88(1) :29-38 (1997)	26.0	38.0
Wormald M, <u>Petrescu AJ</u> , PaoYL, Glythero A, Elliot T, Dwek RA "Conformational Studies of Oligosaccharides and Glycopeptides ", <i>Chem.Rev.</i> , 102 : 371-387 (2002)	13.0	21.0
<u>Branza-Nichita N</u> , <u>Petrescu A-J</u> , <u>Negroiu G</u> , Dwek RA, <u>Petrescu SM</u> , "N-glycosylation Processing and GP Folding ", <i>Chem Rev</i> , 100 , 4697-4711 (2000)	12.0	20.0

Maekawa T, Cheng W, <u>Spiridon LN</u> , Töller A, ..., <u>Micluta MA</u> , Somssich IE, Takken FLW, <u>Petrescu A-J</u> , Chai J, Schulze-Lefert P, "Coiled-coil domain-dependent homodimerization of intracellular MLA", <i>Cell Host-Microbe</i> , 9(3) , 187-199 (2011)	7.0	13.0
Avelar RA, Ortega JG, <u>Tacutu R</u> , Tyler EJ, ..., Fraiefeld VE, Bishop CL, de Magalhães JP "A multidimensional systems biology analysis of cellular senescence in aging and disease.", <i>Genome Biol.</i> 21(1) :91 (2020)	6.8	13.0
Kammenga JE, Doroszuk A, Riksen JA, Hazendonk E, <u>Spiridon L</u> , <u>Petrescu A-J</u> , ..., Bakker J "A <i>Caenorhabditis elegans</i> wild type defies the temperature-size rule owing to a single nucleotide polymorphism in <i>tra-3</i> .", <i>PLoS Genet.</i> 3(3) , e34 (2007)	6.0	9.0
Wróblewski T, <u>Spiridon L</u> , <u>Martin EC</u> , <u>Petrescu AJ</u> , Cavanaugh K, J..., Michelmore RW, Takken FL "Genome-wide functional analyses of plant CC-NLR-type pathogen receptors." <i>PLOS Biology</i> 16(12) : e2005821 (2018)	5.5	9.0
<u>Petrescu A-J</u> , Wormald MR, Dwek RA., "Structural aspects of glycomes with a focus on N-glycosylation and glycoprotein folding.", <i>Curr Op Str Biol</i> , 16 , 600-607 (2006)	5.0	9.5
Vlad MO, Morán F, Popa VT, <u>Szedlacsek SE</u> , Ross J. "Functional, fractal nonlinear response with application to rate processes with memory, allometry, and population genetics." <i>Proc Natl Acad Sci U S A.</i> 104(12) :4798-803. (2007)	5.0	9.5
Vlad MO, <u>Szedlacsek SE</u> , Pourmand N, Cavalli-Sforza LL, Oefner P, Ross J. "Fisher's theorems for multivariable, time- and space-dependent systems, with applications in population genetics and chemical kinetics." <i>Proc Natl Acad Sci U S A.</i> 102(28) :9848-53 (2005)	5.0	9.5
Slootweg E, Roosien J, <u>Spiridon LN</u> , <u>Petrescu A-J</u> , Tameling W, ..., Bakker J, Goverse A. "Nucleocytoplasmic Distribution is Required for Activation of NB-LRR Receptor Rx1 and is Balanced by its Functional Domains.", <i>Plant Cell</i> , 22(12) : 4195-4215 (2010)	4.0	10.0
<u>Tacutu R</u> , Thornton D, Johnson E, Budovsky A, ..., Fraiefeld VE, de Magalhães JP. "Human Ageing Genomic Resources." <i>Nucl.Acid.Res.</i> 46(D1) :D1083-D1090 (2018)	3.6	11.0
Kozuki T, Chikamori K, <u>Surleac MD</u> , <u>Micluta MA</u> , <u>Petrescu AJ</u> , Norris EJ, ..., Ganapathi MK "Roles of the C-ter domains of topoisomerase II α and II β in regulation of the decatenation checkpoint. <i>Nucl. Acid Res.</i> 45(10) :5995-6010 (2017)	3.6	11.0

IBAR Main International Grants (2000-2022)

2000 – 2010

- UK Wellcome Trust (1998-2001): "N-glycosylation and folding of human and mouse tyrosinases", Dr. Petrescu S-M
- UK Wellcome Trust (2001-2004): "Chaperone mediated folding of tyrosinase", Dr. Petrescu S-M
- UK Wellcome Trust (2001-2004): "Morphogenesis of BVDV Virus", Dr. Branza-Nichita N
- UK Wellcome Trust (2002-2005): "A database with structural information of glycoproteins", Dr. Petrescu A.-J.
- EU FP5 Integrated Project (2002-2004): "NONEMA", Dr. Petrescu A.-J.
- EU FP6 Integrated Project (2005-2011): "BIOEXPLOIT", Dr. Petrescu A.-J.
- EU FP6 Marie Currie (2006-2010) "PTPNET", Dr. Szedlacsek SE
- EU FP6 Marie Currie (2005-2007) "HDPTP", Dr. Tanase C

2010 – 2022

- CH-Ro Collaborative Grant (2012-2015) "ERAD Pathway", Dr. Petrescu S-M
- EU FP7 COST (2013-2016) "EFFECTOME", Dr. Petrescu A-J
- EEA/2013 - RO-NO-5 - (2014-2017) "GREENVAC", Dr. Norica Nichita
- EEA/2013 - RO-NO-47 - (2014-2017) "YePlaHeMe", Dr. Petrescu A-J
- ERANET-2014 (2014-2017) "HCVASSEMBLY", Dr. Popescu C. I
- ERANET-2014 (2016-2019) "HCVAsmImage", Dr. Popescu I

- ERANET-2016 - 53 (2016-2019)
"INinRAGI", Dr. Petrescu A-J
- H2020 MSCA-RISE-2016 (2017-2022)
"LysoMod", Dr. Petrescu S-M
- EUK-2017-02-0030 (2018-2021) "XploitAD", Dr. Milac A
- ERA-NET NEURON III (2019-2022)
"EMBED", Dr. Tacutu R
- EEA/2019 - RO-NO-1 - (2019-2021)
"SmartVac", Dr. Norica Nichita
- EEA/2021 - RO-NO-34 - (2021-2023)
"NEXTDRUG", Dr. Tunaru Sorin

IBAR organised international events:

- 2000 FEBS Workshop "*Biochemical research in Eastern Europe*"
- 2001 FEBS Course "*DNA Recombinant Technology*"
- 2001 The 12th Meeting "*Balkan Biochemical Biophysical Days*"
- 2003 FEBS Course "*DNA Recombinant Technology and Protein Expression*"
- 2004 The Conference "*Glycosylation and Disease*"
- 2005 The FEBS-IUBMB Satellite Meeting "*Protein Folding in Health and Disease*"
- 2005 FEBS Course "*DNA Recombinant Technology and Protein Expression*"
- 2008 FEBS Course "*DNA Recombinant Technology and Protein Expression*"
- 2010 The Conference "*Life and Chemistry*" honoring Barry Blumberg, Nobel Prize
- 2010 The Diaspora Conference "*Trends in medical genomics and proteomics*"
- 2000-2018 The Annual International Meetings of *RSBMB (the Romanian Society of Biochemistry and Molecular Biology)*

IBAR Alumni

Exquisite PhD Graduates of IBAR, since 2000

- Nichita-Branza Norica*, 2000, suma cum laude: "*The Study of tyrosinase folding mechanisms by*",
- Costin Emilia*, 2001, cum laude: "*The uptake and transport of N-glycosylation modulators*",
- Constantinescu Alexandru*, 2002, magna cum laude: "*Structural and functional studies on the small Ypt7p*",
- Fulga Tudor*, 2002, cum laude: "*Functional characterisation of the mamalian SRP receptor*",
- Cismasiu Valeriu*, 2003, cum laude: "*Structure and activity of receptor PTPases*",
- Milac Adina-Luminita*, 2004, cum laude: "*Knowledge-based analysis of protein structures and complexes*",
- Padurarui Crina*, 2007, magna cum laude: "*The role of N-linked glycans in intracellular processing of CD1d protein*"
- Catalin Lazar*, 2008, magna cum laude: "*Characterisation of BVD Virus system as in vitro model to study HepC Virus*"
- Alina Macovei*, 2009, magna cum laude: "*Host Cell Factors Involved in Enveloped Viruses Entry and Morphogenesis*"
- Livia Sima*, 2011, cu distinctia foarte bine: "*Molecular Mechanisms of Melanoma Antigen Presentation*"
- Laurențiu Spiridon*, 2011, suma cum laude: "*Investigation of Protein Structure and their PTM using Bioinformatics*"
- Bucur Octavian*, 2014, suma cum laude: "*Novel Regulatory Mechanisms of FOXO3/1 Tumor Suppressor*"

Chiritoiu Marioara, 2014, magna cum laude: "*Role of EDEM3 in ERAD*"

Munteanu Cristian, 2016, suma cum laude: "*Insights into functional Interaction Proteomics of ERAD*"

Chiritoiu Gabriela, 2016, magna cum laude: "*Role of N-glycosylation and functional ERAD in modulation of tyrosinase immunogenicity*"

Surleac Marius, 2017, magna cum laude: "*Metode de Calcul cu Utilizări în Modelarea și Simularea Moleculară*"

Dobrică Olivia, 2018, suma cum laude: "*Obținerea de Noi Antigene Virale pentru Producerea de Vaccinuri pentru Hepatitele B & C*"

Exquisite MSc and Undergraduate students trained in IBAR, since 2000

Aricescu Radu, PhD University Colledge London, PostDoc Univ of Oxford, UK

Creangă Adrian, PhD student at John Hopkins University, Maryland, US

Denes Alexandru, PhD student at EMBL Heidelberg, D

Giambasu Madalin, PhD at Minessotta Univ, USA; Post Doc Rutgers Univ USA

Moldovan Lucian, PhD at MPI Munchen, D, Post Doc, Harvard US

Pena Vlad, PhD at EMBL Heidelberg, D; Group Leader at MPI Gottingen, D

Tăcutu Robi, PhD at Ben Gurion Univ. Is; Post Doc Liverpool Univ. UK

Dorobantu (Radulescu) Cristina, PhD at Radboud Univ. Nijmegen, NI;

Căldăraru Octav, PhD at Lund Univ. Sw; Res. Zealand Pharma

IBAR Departments

<https://www.biochim.ro/research-groups/>

DEPARTMENT OF MOLECULAR CELL BIOLOGY.

Members:

Stefana M. Petrescu, PhD – Head
Gabriela Negroiu, PhD – Senior Res.
Simona Ghenea, PhD – Senior Res.
Marioara Chiritoiu, PhD – Senior Res.
Livia Sima, PhD – Senior Res.
Ioana Popa, PhD – Senior Res.
Florentina Pena PhD - Senior Res.
Gabriela Chiritoiu, PhD- Senior Res.
Petruta Alexandru, PhD
Anca Filimon, PhD
Ioana Militaru, PhD student
Alina Rus, PhD student
Andreea Anghel, PhD student



Main Focus:

"Cellular pathways of protein biosynthesis and transport"

Current Work

Protein homeostasis is fundamental for cell function and survival because proteins are critical facilitators of all cellular processes. Our goal is to better understand the processes that maintain the fine balance between newly synthesized and old or misfolded proteins, preserving the protein homeostasis and preventing various diseases. Current projects in the laboratory are focused therefore on processes regulating protein lifetime: protein folding and maturation, trafficking, subcellular localization and degradation. Our research explores new ways of investigating the quality control process occurring in the endoplasmic reticulum that facilitates protein secretion towards the Golgi apparatus whilst regulating degradation of misfolded proteins by ERAD pathways.

Protein processing with focus on antigen processing and presentation is currently investigated and aims at determining the exact role of ERAD components in the generation of tyrosinase-derived tumour antigens. Understanding of basic mechanisms of antigen processing and presentation to T cells will provide valuable clues to enhance the efficacy of peptide-based cancer vaccines. Deciphering the pathways mediated by the tyrosinase-related antigen, TRP-2 is another focus of our group aiming at uncovering the potential implications of this antigen in the prognostic and therapy of malignant melanoma.

We develop new tools to extend our knowledge on the role of ERAD in the endoplasmic reticulum of secretory cells. Proinsulin matures in the endoplasmic reticulum of pancreatic β -cells and depending on the ER folding capacity is either secreted or destroyed. Our hypothesis is that up-regulation of ERAD enhancers may alleviate the ER burden in pancreatic β -cells by recruiting misfolded proteins for degradation. To verify this hypothesis

we use model β -cells, intact primary islets and animal models with modified ERAD and test the insulin secretion upon glucose-stimulation.

Future Projects

In the next years our research will focus on the molecular mechanisms of the folding and intracellular transport of soluble and membrane bound glycoproteins. In particular, melanoma proteins will be investigated in terms of maturation, degradation and antigen presentation.

Selected Publications

1. Sima LE, et al . "Loss of host tissue transglutaminase boosts antitumor T cell immunity by altering STAT1/STAT3 phosphorylation in ovarian cancer" *J.Imm.Ther.Cancer*, **9**:e002682 (2021) IF= 13.7
2. Anghel SA et al. "Promising Epigenetic Biomarkers for the Early Detection of Colorectal Cancer: A Systematic Review". *Cancers*, **13**(19):4965, (2021). IF=6.64
3. Munteanu CVA, Chirițoiu GN, Chirițoiu M, Ghenea S, Petrescu AJ, Petrescu ȘM. "Affinity proteomics and deglycoproteomics uncover novel EDEM2 endogenous substrates and an integrative ERAD network." *Molecular & Cellular Proteomics* **e100125**. (2021) IF=5.91
4. Chiritoiu M, Chiritoiu GN, Munteanu CVA, Pastrama F, Ivessa NE and Petrescu SM . "EDEM1 Drives Misfolded Protein Degradation via ERAD and Exploits ER-Phagy as Back-Up Mechanism When ERAD Is Impaired.", *Int.J.Mol.Sci.*, **10**(21):3468 (2020) IF=5.9
5. Villeneuve J, Bassaganyas L, Lepreux S, Chiritoiu M, Costet P, Ripoche J, Malhotra V, Schekman R . Unconventional secretion of FABP4 by endosomes and secretory lysosomes. *The Journal of Cell Biology*, **217**(2):649-665 (2018). IF=8.89
6. Condello S, Sima L, Ivan C, Cardenas H, Schiltz G, Mishra RK, Matei D . Tissue Tranlglutaminase Regulates Interactions between Ovarian Cancer Stem Cells and the Tumor Niche. *Cancer Research*, **78**(11):2990-3001(2018) IF=8.38
7. Nwani NG, Sima LE, Nieves-Neira W, Matei D . Targeting the Microenvironment in High Grade Serous Ovarian Cancer. *Cancers*, **10**(8) (2018). IF=6.64
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9. Popa IL, Milac AL, Sima LE, Alexandru PR, Pastrama F, Munteanu CV, Negroiu G . Cross-talk between Dopachrome Tautomerase and Caveolin-1 Is Melanoma Cell Phenotype-specific and Potentially Involved in Tumor Progression. *The Journal of Biological Chemistry*, **291**(24):12481-500 (2016) .IF=4.12
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DEPARTMENT OF MOLECULAR VIROLOGY

Members:

Norica Nichita, PhD – Head. Dept.
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Catalin Lazar, PhD - senior. res.
Mihaela Uță, Post.Doc
Olivia Dobrica, PhD
Lia M. Cucos, PhD student
Ana-Maria Pantazică, PhD student
David Patrichie, PhD student
Alina-V. Ghionescu, PhD student
Daiel Ion, PhD student
Mirela Popescu, PhD student



Main Focus

Cellular pathways of viral infections and molecular strategies for prevention. Development of novel antiviral strategies against Hepatitis B and C viruses. HBV infection and morphogenesis

Current Work

The Viral Glycoproteins group was founded in 2002 with the aim to apply the methods developed in the Institute for the study of glycoprotein folding, to a more specific but highly challenging field of molecular biology, the viral envelope packing.

Human hepatitis B and C viruses cause infections of the liver. Worldwide about 300 million people are chronically infected with either HBV or HCV. Of these patients, more than 500.000 die annually from complications of liver disease. Most of these cases occur in developing countries resulting in widespread social and economic problems, especially among the poor people. Sadly, Romania has the highest prevalence of HBV/HCV infections among the EU countries (up to 7% of the population).

Current therapies against HBV, based on replication inhibitors and immune system activators, are associated with severe side effects, resulting frequently in early discontinuation of treatment, while the HCV direct acting antivirals of novel generations are very costly and their use is limited to advanced liver disease. In addition, both viruses are prone to development of resistance to antiviral inhibitors, which reduces significantly the efficiency of treatment. Efficient anti- HBV vaccines are available on market; however, up to 10% individuals fail to develop a protective immune response and remain exposed to infection. In the case of HCV, although intensive research is undergoing, no vaccine has been developed yet and 3-4 million of new infections are expected to occur every year.

Our group is focused on i) studying the interaction between HBV/HCV and their host, the human hepatocyte and identifying novel cellular factors and pathways involved in viral assembly and trafficking that could be targeted by antiviral therapies; ii) designing new viral antigens with improved immunogenic properties; iii) producing these antigens at low costs, using complementary expression systems such as plants and insect cells; iV) developing

improved assays adapted for highthroughput screening of chemical compounds with antiviral properties; v) educating and training young researchers in the molecular virology field.

Future Projects

Future projects will continue to address production of novel HBV/HCV antigens with improved immunogenic properties, in a cost-effective manner and the role of inositides in the HBV/HCV life cycles.

Selected Publications:

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5. Dobrica Mihaela-Olivia, Catalin Lazar, Norica Nichita . *Production of Chimeric Hepatitis B Virus Surface Antigens in Mammalian Cells*. **Methods in Molecular Biology**, Blaine Pfeifer and Andrew Hill (eds.). Springer Science., 2020, 2183(Vaccine Delivery Technology: Methods and Protocols).
6. Dobrica MO, Lazar C, Paruch L, van Eerde A, Clarke JL, Tucureanu C, Caras I, Ciulean S, Onu A, Tofan V, Branza-Nichita N . *Oral administration of a chimeric Hepatitis B Virus S/preS1 antigen produced in lettuce triggers infection neutralizing antibodies in mice*. **Vaccine**, 2018, 36(38):5789-5795.IF=3.27
7. Vlaicu O, Selescu T, Pastrama F, Munteanu C, Riva L, Dubuisson J, Rouille Y, Popescu CI . *Novel replicons and trans-encapsidation systems for Hepatitis C Virus proteins live imaging and virus-host interaction proteomics*. **Journal of virological methods**, 2017, 246:42-50.
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DEPARTMENT OF ENZYMOLOGY.

Members

Stefan Eugen Szedlacsek , PhD – Head Dept.

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Ionescu Aura, PhD

Alexandra Bănică, PhD Student

Cosmin Trif, PhD Student

Andrei Vasilescu, PhD Student

Adina Puiu, PhD Student

Otilia-Cristina Donțu, Tech.

Cătălin Bică, Tech.



Main Focuss:

“Cellular signalling cascades and the structure and role of signalling enzymes”.

Current Work

The central research topic of the group is the study of the structure-function relationships of signaling enzymes, with emphasis on tyrosine phosphatase proteins. We aim to contribute to the understanding of how their structural characteristics are correlated with specific signaling functions. To this end, we analyze each signaling enzyme that we investigate from several directions:

- as a classical enzyme, trying to evaluate its stability under different conditions, pH dependence of activity, specific activity, kinetic parameters at steady state, substrate specificity and also the identification of specific inhibitors as well as the corresponding inhibition constants;
- as a protein, trying to crystallize the purified enzyme preparation and then determine its 3D structure
- as a signaling entity, trying to find its subcellular location, physiological substrate (s), regulatory interactions, the role played in signaling pathways, etc.

The combination of results thus obtained in this way is further used to shed light on the signaling mechanism and the overall functional role of the given enzyme.

The group has good experience and is currently involved in the production, isolation and purification of recombinant proteins, expressed in both prokaryotic and eukaryotic systems. The research activity of the group is performed by molecular biology instruments (recombinant DNA, site-directed mutagenesis, (RT) -PCR, Western blot, immunoprecipitation, etc.), spectroscopic analysis (UV-VIS and fluorescence spectrophotometry), cell biology, protein crystallization and enzyme kinetic analysis.

Our team is involved in numerous national research projects and international collaborations. Thus, the specific research projects in progress are:

- Identification of signaling mechanisms involved in tumorigenesis, as a result of dephosphorylation by EYA3 of the specific substrate WDR1;

- Study of the mechanism of action of some interference peptides involved in inhibiting the internalization of AMPA neuronal receptors;
- Identification of new tumor markers in acute myeloid leukemia, thyroid cancer, lung cancer, colorectal cancer. Potential ways of targeted diagnosis;
- Design and laboratory experimentation of a molecular vector based on Holmium166 for targeted radiodiagnosis and radiotherapy.

Selected Publications

1. Patras L, Ionescu AE, Munteanu C, Hajdu R, Kosa A, Porfire A, Licarete E, Rauca VF, Sesarman A, Luput L, Bulzu P, Chiroi P, Tranca RA, Meszaros MS, Negrea G, Barbu-Tudoran L, Potara M, Szedlacsek S, Banciu M. "Trojan horse treatment based on PEG-coated extracellular vesicles to deliver doxorubicin to melanoma *in vitro* and *in vivo*." *Cancer Biol Ther*. 2021 Dec 29:1-16. doi: 10.1080/15384047.2021.2003656. Online ahead of print. PMID: 34964693
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4. Manolache A, Selescu T, Maier GL, Mentel M, Ionescu AE, Neacsu C, Babes A, Szedlacsek SE. "Regulation of TRPM8 channel activity by Src-mediated tyrosine phosphorylation." *J Cell Physiol*. 2019 Nov 14. doi: 10.1002/jcp.29397. Published: June 2020
5. Zimta AA, Schitcu V, Gurzau E, Stavaru C, Manda G, Szedlacsek S, Berindan-Neagoe I. "Biological and molecular modifications induced by cadmium and arsenic during breast and prostate cancer development." *Environ Res*. 2019, Nov; **178**:108700. doi: 10.1016/j. Review.
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8. Rosca AM, Mitroi DN, Cismasiu V, Badea R, Necula-Petrăreanu G, Preda MB, Niculite C, Tutuiianu R, Szedlacsek SE, Burlacu A. "Collagen regulates the ability of endothelial progenitor cells to protect hypoxic myocardium through a mechanism involving miR-377/VE-PTP axis." *J Cell Mol Med*. , **22(10)**, 4700-4708, 2018
9. Mentel M, Ionescu AE, Puscalau-Girtu I, Helm MS, Badea RA, Rizzoli SO, Szedlacsek SE. "WDR1 is a novel EYA3 substrate and its dephosphorylation induces modifications of the cellular actin cytoskeleton." *Sci Rep*. **8(1)**:2910 (2018) Feb 13;.
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14. Petrareanu G, Balasu MC, Zander U, Scheidig AJ, Szedlacsek SE, "Preliminary X-ray crystallographic analysis of the D-xylulose 5-phosphate phosphoketolase from *Lactococcus lactis*.", *Acta Crystallogr Sect F*, **66**, 805-807 (2010)
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DEPARTMENT OF BIOINFORMATICS & STRUCTURAL BIOLOGY.

Members:

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Cristian Munteanu, PhD – Senior Res.
Marius Micluță, PhD – Researcher
Eliza Martin, PhD Student
Gabriela Bunu, PhD Student
Teodor A Șulea, PhD Student



Main Focuss

"In silico structural biology correlated with experiment"

Mission Statement

The Department of Bioinformatics & Structural Biochemistry (DBSB) was set in 1999 as the first research unit in Romania aiming by mission to consistently implement computational biology techniques - bioinformatics, modeling, simulation - and use them to guide experimental research in molecular biology and biochemistry.

Overview

The Department of Bioinformatics & Structural Biology was funded in 1999 by Andrei-J. Petrescu and have function ever since aiming to consistently implement biocomputing techniques in the realm of bioinformatics, modeling & simulation - and use them to guide experimental research in molecular biology and biochemistry. Since then, the Department deliver structural bioinformatics and molecular modeling results in investigating glycoprotein folding and degradation, the relation between glycosylation and glycoprotein's structure, and more generally studying the biophysical aspects of protein folding, structure and interactions. Currently, the group develops techniques computational techniques in this field and applies them to a variety of problems in structural biology, immunobiology, molecular medicine and in silico pharmacology.

In 2012, Adina Milac († 2019), with her PhD in DBSB, returned from the National Institute of Health, NIH Bethesda, USA, where she carried out two PostDoc stages in Lawrence Tabak's and Robert Guy's lab. Adina brought in fresh molecular modeling and simulation techniques and new research topics related to structure-function relation in ion-channel systems and drug-design.

In 2016, Laurentiu Spiridon, with his PhD in DBSB, also returned from a PostDoc at the Illinois Institute of Thechnology in David Minh Lab. Laur has brought in new Free-Energy computational methods that we are currently using in ligand screening and drug design. Since his return Laur has actively worked to develop a new generation of Gibbs sampling techniques based on robotic algorithms that have been implemented in the Robosample simulation platform.

Another research direction we pursue is led by Cristian Munteanu who focused on coupling computational techniques with Mass Spectrometry, Surface Plasmon Resonance and data derived from the high-throughput Drug Screening Platform of the Institute, aiming to step up the scale of biological system investigation to the global proteome and interactome level.

Since 2016, the department greatly increased its size, with the addition of the Computational and Systems Biology of Ageing Group led by Robi Tacutu, also a DBSB alumni who recently returning to the Institute from the University of Liverpool, UK. Robi's group is developing and using bioinformatics tools and omics data to better understand the ageing process and age-related diseases. The group has a strong multidisciplinary background, mixing gerontology, bioinformatics and machine learning techniques in order to analyze large amounts of data from heterogenous high-throughput technologies and from a wide variety of OMICS.

The department is supported by the computational infrastructure provided by the High Performance Computing Centre, one of the central facilities of the Institute, which is smoothly run by Dr. Marius Micluta, and is vital to our molecular simulations and bioinformatics analyses.

Present work and future prospects

We have ongoing projects to developing new statistical and machine learning techniques useful in biocomputing and bioinformatics. Another priority of DBSB in the near future will be to coupling computational techniques with Mass Spectrometry, Surface Plasmon Resonance and data derived from the Highthroughput Drug Screening Platform of IBAR, aiming to step up the scale of biological system investigation to global proteome and interactome level.

Selected Publications

1. Munteanu CVA, Chiritoiu GN, Chiritoiu M, Ghenea S, Petrescu AJ, Petrescu SM. "Affinity Proteomics and Deglycoproteomics Uncover Novel EDEM2 Endogenous Substrates and an Integrative ERAD Network", *Mol Cell Proteomics*. **20**:100125 (2021).
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3. Constantinescu V, Chiru C, Boloni T, Florea A, Tacutu R. "Learning flat representations with artificial neural networks." *Applied Intelligence*, 2456–2470. (2021)
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DEPARTMENT OF PROTEIN INTERACTIONS & BIONANOTECHNOLOGIES.

Members:

Anca Roseanu, PhD. – Head

Mihaela Trif, PhD. – Senior Res.

Paula Florian, PhD. – Senior Res.

Madalina Icriverzi, PhD – Res.



Main Focus:

Protein interactions and bionanotechnologies. Anti-inflammatory and immunomodulatory activities of Lactoferrin

Current Work

Lactoferrin (Lf) is an iron binding glycoprotein of transferrin family, present in almost all mammalian secretions and neutrophils. A variety of biological functions have been ascribed to Lf, including anti-inflammatory and immunomodulatory effects. The protective action of Lf during inflammation is related to its influence on cytokine production and capacity to bind potentially toxic iron at inflammation foci. In our previous studies performed in collaboration with the Department of Clinical Bacteriology, University of Goteborg, we found that LPS (lipopolysaccharide) -induced cytokine production, in particular TNF- α , IL-1 β , IL-6, are inhibited by Lf. The binding of protein to LPS could partly explain its inhibitory activity since the effect could be seen when Lf was added before as well after cell stimulation. This suggests that other mechanism(s) than simple LPS scavenging property of Lf is (are) responsible for the inhibitory activity.

In this respect, our group approaches two aspects:

The mode of action of Lf on intracellular signal transduction pathways.

Our preliminary results showed that Lf is taken up by monocytic cells. Therefore it is possible that Lf, following the binding to the cells, might affect some intracellular pathways involved in the cell response to external stimuli such as bacterial endotoxins. LPS stimulation of monocytes has been shown to induce the activation of three subgroups of MAPKinase family-p38, ERK1/2 and JNK. These enzymes play an important role in the control of proinflammatory cytokine production mediated by LPS. We propose to study the effect of Lf on the phosphorylation and activation of MAPKinases in the presence/absence of LPS. The results will be related to the effect of Lf on the LPS-induced cytokine production in monocytic THP-1 cells. This aspect involves collaboration with Dr. Inger Mattsby-Baltzer group from the Department of Clinical Bacteriology, University of Gothenburg, Sweden.

The anti-inflammatory properties of Lf in vivo: use of liposomes as possible carriers for Lf in the treatment of Rheumatoid Arthritis.

Exhibiting antimicrobial and anti-inflammatory activities Lf could have therapeutic potential in arthritic disease. We are investigating the ability of free and liposome-entrapped Lf to reduce inflammation when administrated to the joint. Current studies aim to establish the

suitable liposomal formulation able to deliver Lf efficiently into the joint of mice with collagen-induced rheumatoid arthritis. Liposomes-entrapped Lf is expected to serve as a better tool and therapeutic agent against inflammation. This part is developed in collaboration with Dr. James Brewer group from the Department of Clinical Immunology, Glasgow University, UK, coordinated by Prof. F. Y. Liew.

The project should provide important information for understanding the anti-inflammatory activity of Lf in vivo.

Future projects

In the next years our research will focus on the cellular and molecular mechanisms involved in the anti-inflammatory and immunomodulatory activities of Lf.

Selected Publications

1. Bonciu AF, Orobeti S, Sima LE, Icriverzi M, Filipescu M, Moldovan A, Popescu A, Dinca V, Dinescu M, "Pyramidal shaped ceria nano-biointerfaces for studying the early bone cell response." *Appl.Surf.Sci.*, **533(10)**. (2020)
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IBAR Core Facilities



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Programul Operațional Sectorial
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The PROCERA Project 2010 - 2012

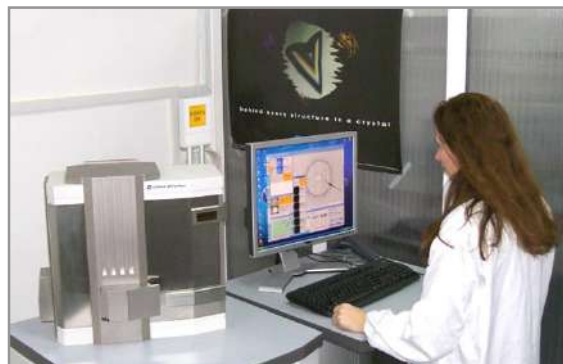
" Development of IBAR research infrastructure for increasing research capacity in biomedical proteomics " - 28.400.000 Lei

The PROCERA Project was aimed to upgrade the facility core of IBAR in order to increase its research capacity in biochemistry and molecular biology. The project created the stage for high quality results and innovation with increased economical potential, in line with the aims of European Knowledge-Based Bio-Economy – KBBE. Procera set up the following open-access laboratories:

Molecular Biomarkers; Proteomics; Structural Biochemistry; Medical Glycobiology; Bioinformatics & Biocomputing; Nanotech & Biocompatibility; Antiviral drugs equipped with cutting-edge equipment for analysis of the structure, function, biosynthesis and systems biology of proteins and for the development of easily transferable applications in clinical and pharmaceutical industry.

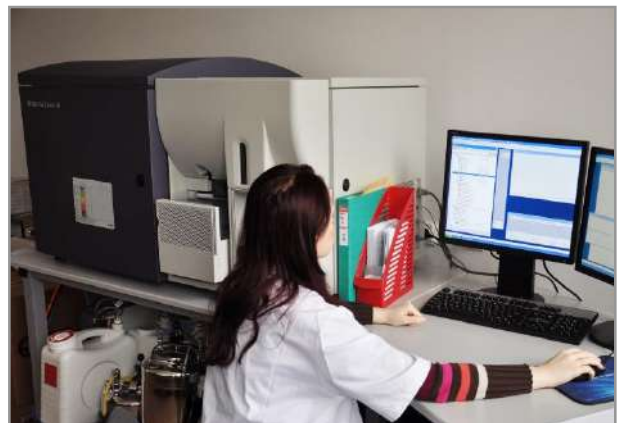


General, Analytical & Structural Biochemistry



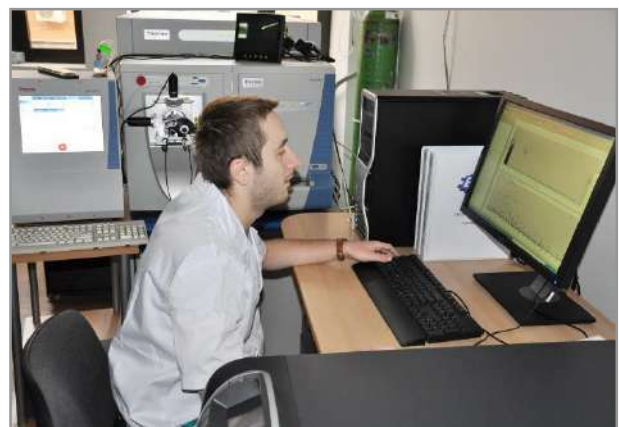
Facilities for recombinant DNA technology; FPLCs, HPLCs, Ultra & Bench Centrifuges, Scanner Diffractometer; Spectrophotometers; Nanodrop spectrofluorimeters; Dark room etc.

Molecular Biomarkers & Bionanotechnologies



Mamalian cell culture facilities; Confocal, Fluorescence & Stereo Microscopes; Flow and Sorting Cytometres; Ultracentrifuges; Radioactivity Facilities for Pulse Chase & IPP; Liposome Preparation Facility; HPLC; Laser Nefelometer for Colloid Characterization System for Quantitative Histo-microscopy

Proteomics



2D Electrophoresis; Mass Spectrometry; Surface Plasmon Resonance

Medical Glycobiology



HP Anion. Exch. Chromatograph; Integrated ELISA-FRET system; Phosphoimmager

Bioinformatics & Modelling Laboratory



High Perf. Computing Center; Graphic Stations ; Biocomputing Softwares; Data Bases

Antiviral drugs



P2 Facility for viral investigation; Automated Highthroughput Drug Screening Facility;
Preparative Ultracentrifuge

Advanced Research Training Programs coordinated by IBAR



European Union



Romanian Government
Ministry of Labor, Family & Social Protection
AMPOSDRU



European Social Fund
POSDRU
2007-2013



Structural Instruments
2007-2013



MINISTERUL
EDUCAȚIEI
CERCETĂRII
TINERETULUI
ȘI SPORTULUI

Romanian Government
Ministry of Education, Research, Youth and Sport
OIPOSDRU

Example: The Postdoctoral Program "Cellular and Molecular Biotechnologies for Medical Application" 2010 - 2013

The Postdoctoral fellowship Program: "Cellular and Molecular Biotechnologies for Medical Application" carried out by a Consortium formed by: IBAR; USAMV Cluj; Clinical Institute Fundeni; INFLRP Magurela; the UMF Timisoara; and the Faculty of Chemistry, University of Bucharest aimed at training of young PhDs in biology, chemistry, physics medical & pharmaceutical sciences for careers in research on the following research topics:

- a) Genomics, Proteomics, Metabolomics and Bioinformatics;
- b) Molecular Cell Biology;
- c) Cellular Therapies;
- d) Biomaterials, nanostructures and pharmacophores.

Post Doc Researchers and their Topics



Simona Ghenea - IBAR, *former*: Post.Doc. at Queens University, Canada
Research Topics: "Protein cellular homeostasy in normal and pathological states"



Ioan-Costin Popescu - IBAR *former*: PhD at University of Oxford, UK
Research Topics: "The morphology and intracellular traffic of Hep B & C viruses"



Florentina Pena - IBAR *former*: PhD at University of Utrecht, thr Netherlands
Research Topics: "Hipoxy and unfolded protein accumulation in cancer"



Ioana Popa - IBAR *former*: PhD at University of Utrecht, thr Netherlands
Research Topics: "Modulation of the receptor expression for advanced glycosylation products in diabetes and inflammatory diseases"



Laurentiu Spiridon - IBAR *former*: PhD at IBAR
Research Topics: "Development of bioinformatics methods for proteomics"



Adina Milac - IBAR, *former: Post.Doc. at NIH Bethesda, USA*

Research Topics: "*Computational models of structure and function of biomedically relevant proteins and their interaction with potential drugs*"



Diana David-Rus - IBAR, *former: PhD at Rutgers University, USA*

Research Topics: "*Bioinformatics and mathematical modeling of epigenetic and aging processes*"



Catalin Lazar - IBAR *former: PhD at IBAR*

Research Topics: "*The morfology and intracellular trafic of Hep B & C viruses*"



Alina Macovei - IBAR *former: PhD at IBAR*

Research Topics: "*The morfology and intracellular trafic of Hep B & C viruses*"



Corina Flangea - IBAR, *former: PhD at UMF Timisoara*

Research Topics: "*Mass Spectrometry of Endoplasmic Reticulum-Associated Protein Degradation (ERAD) products*"



Lisandru Daniela - IBAR, *former: PhD Institute of Virology, Romanian Acad.*

Research Topics: "*Molecular mechanisms of endoplasmic reticulum stress and pancreatic beta cells*"



Vargolici Bogdana - IBAR, *former: PhD UMF Bucuresti.*

Research Topics: "*Pancreatic beta-Cells in Diabetes and Regenerative Medicine.*"



Zurac Sabina - IBAR, *former: PhD UMF Bucuresti.*

Research Topics: "*Mechanisms involved in tumor regression in malignant melanoma and corroboration with prognostic factors and disease progression.*"



Georgiana Petrareanu - IBAR, *former: PhD IBAR.*

Research Topics: "*The structure and function of cellular signaling enzymes.*"



Mihaela Menzel - IBAR, *former: PhD IBAR.*

Research Topics: "*The structure and function of cellular signaling enzymes.*"



Vulpe Silviu - IBAR, *former: PhD University of Bucharest.*

Research Topics: "*Biopolymer fibers with magnetic mineral nanoparticles insertion for controlled release of drugs.*"



Oana Craciunescu - IBAR, *former: PhD University Polytechnica Bucharest.*

Research Topics: "*Lipid nanostructures as controlled delivery systems for anti-inflammatory bioactive molecules.*"



Daniela Cucu - Fundeni Clinics, *former: PhD Catholic University Leuven, Belgium.*

Research Topics: "*The desmoplastic reaction and pancreatic cancer progression.*"



Tudor-Rasvan Grigorie - Fundeni Clinics, *former: PhD UMF Bucharest.*

Research Topics: "*Applied genomics for organ and cellular transplant.*"



Catalina Luca - Fundeni Clinics, *former: PhD University of Bucharest.*

Research Topics: "*Hematopoietic stem cell therapies in Hepatic Disease.*"



Laura Buburuzan - Fundeni Clinics, *former: PhD Iasi University.*

Research Topics: "*Applied genomics for organ and cellular transplant.*"



Luminita Ivan - Fundeni Clinics, *former: PhD "N Simionescu" Institute, Rom.Acad.*

Research Topics: "*Pancreatic beta-Cells in Diabetes and Regenerative Medicine.*"



Bleotu Coralina - Fundeni Clinics, *former: PhD Inst. of Virology, Romanian Acad.*

Research Topics: "*Cellular therapy in pancreatic disorders.*"



Anca Botezatu - Fundeni Clinics, *former: PhD Inst. of Virology, Romanian Acad.*

Research Topics: "*Epigenetics of pancreatic oncogenesis for biomarker identification.*"



Valentin Ordodi - UMF Timisoara, *former: PhD UMF Timisoara.*

Research Topics: "*Mesenchymal stem cell diferentiation toward adipocytes.*"



Maria Bojin - UMF Timisoara, *former: PhD UMF Timisoara.*

Research Topics: "*Comparative studies on Mesenchymal stem cell and tumoral fibroblasts.*"



Alexandra Boleman-Ivan - UMF Timisoara, *former: PhD UMF Timisoara.*

Research Topics: "*Mesenchymal stem cell therapies for re-epithelisation.*"



Dumitrita-Olivia Rugina - USAMV Cluj, *former: PhD USAMV Cluj.*

Research Topics: "*Metabolomics - molecular markers for taxonomical recognition.*"



Simona-Ioana Vicas - USAMV Cluj, *former: PhD USAMV Cluj.*

Research Topics: "*Glucosinolates, molecular markers of Brassica vegetables.*"



Sonia-Ancuta Socaci - USAMV Cluj, *former: PhD USAMV Cluj.*

Research Topics: "*Applied chemometry for food authentication.*"



Cristian D Ene - University of Bucharest, *former: PhD University of Bucharest.*

Research Topics: "*Controlled synthesis and screening of stress-protector compounds.*"



Augustin M Ofiteru - University of Bucharest, *former: PhD University of Bucharest*

Research Topics: "*Investigation of cellular response to abiotic stress conditions in S.cerevisiae.*"



Magdalena Ulmeanu - INFPLR (Lasers), *former: PhD University of Bucharest*

Research Topics: "*Biomaterials Laser Nanostructuring for Pharmaceutical Application, Treatment and Organ Cell Reconstruction.*"



Catalin R Luculescu - INFPLR (Lasers), *former: PhD Tohoku University, Japan*

Research Topics: "*Nanostructures for controlled drug release.*"



Carmen C Surdu-Bob - INFPLR (Lasers), *former: PhD Aston University, UK*

Research Topics: "*The biocompatibility and activity of implant nanostructures.*"



Gabriel Socol - INFPLR (Lasers), *former: PhD University of Bucharest*

Research Topics: "*Compound laser transfer for nanostructure coverings applied in controlled drug release, cell reconstruction & implants.*"



Nicolae-Felix Sima - INFPLR (Lasers), *former: PhD University Haute-Alsace, Fr*

Research Topics: "*Thin coatings of biodegradable polymers and proteins/drugs obtained by pulsed lasers for pharmaceutical and regenerative medicine.*"



Livia E Sima - INFPLR (Lasers), *former: PhD IBAR*

Research Topics: "*Analysis of the differentiation programme of hMSCs grown in interaction with implant-type nanostructures.*"



Mihaela Mindroiu - INFPLR (Lasers), *former: PhD University Politehnica Bucharest*

Research Topics: "*Laser living cells transfer for applications in tissue engineering and organ reconstruction.*"



Aurelian Marcu - INFPLR (Lasers), *former: Post.Doc Nagaoka University Japan*

Research Topics: "*Nanostructures for controlled drug release.*"

IBAR International Events

The DEPARTMENT of BIOCHEMISTRY
UNIVERSITY of OXFORD

The INSTITUTE of BIOCHEMISTRY
ROMANIAN ACADEMY

and

The RSBMB
ROMANIAN SOCIETY of BIOCHEMISTRY and
MOLECULAR BIOLOGY

Invite you to attend the
Conference:
Glycosylation and Disease
Bucharest, June, 3-4, 2004

Topics: • Glycoprotein folding and degradation; • Heat-shock proteins and immunoproteasomes in antigen presentation; • Glycosylation in hepatitis B and C viruses


Plenary Lecture:
Raymond Dwek, University of Oxford, UK

Invited Speakers:
Kazuhiko Nagata, University of Kyoto, Japan
Maurizio Molinari, Biomedicine Unit - Bellinzona, Switzerland
Pauline Rudd, University of Oxford, UK
Annette Paschen, University Hospital Mannheim, Germany
Dirk Schaeuble, University Hospital Mannheim, Germany
Ehrhard Noesner, Institute of Molecular Immunology, Munich, Germany
Ghislain Opdenaker, University of Leuven, Belgium
Stefana Petrescu, Institute of Biochemistry, Romania
Norica Niehita, Institute of Biochemistry, Romania
David Durantel, INSERM, Lyon, France
Andrei Petrescu, Institute of Biochemistry, Romania

"Eliade Rădulescu" Amphitheatre
Library of the Romanian Academy
Calea Victoriei 125

The INSTITUTE of BIOCHEMISTRY
of the ROMANIAN ACADEMY
and
The RSBMB
ROMANIAN SOCIETY of BIOCHEMISTRY and
MOLECULAR BIOLOGY

Invite you to attend the
FEBS-IUBMB Satellite Meeting:
**Protein Folding and Transport
in Health and Disease**
Bucharest, 29th June - 2nd July, 2005

The EMBO Lecture:

Raymond Dwek, University of Oxford, UK

Invited Speakers:
Art Hüttenberg, ETH Zurich, Switzerland
Hide Ploegh, Harvard Medical School, Boston, USA
Peter Cosgrove, Yale Medical School, New Haven, USA
Luis Eduardo, ETH Zurich, Switzerland
Maurizio Molinari, Biomedicine Unit, Bellinzona, Switzerland
Shoshana Ben-Yun, Tel Aviv University, Israel
Michael Maurizi, NCI, Bethesda, USA
Dieter Wolf, Stuttgart University, Germany
Nick Platt, University of Oxford, UK

Deadline for Registration: 15th March 2005
Details on Registration & Program: www.biochim.ro/folding_2005.html
Contact Person: Stefana.Petrescu@biochim.ro

FEBS Advanced Theoretical and Practical Course
**RECOMBINANT DNA TECHNOLOGY
AND PROTEIN EXPRESSION**
June 23 - 29, 2005
Bucharest, Romania

Organizers:
 Institute of Biochemistry of the Romanian Academy
 Romanian Society of Biochemistry & Molecular Biology

Invited Lecturers:
Professor Hans Lenstra, Utrecht University, Holland
Dr. David Durantel, INSERM, Lyon, France
Dr. Nick Laatz, Dept. of Biochemistry, University of Oxford, UK
Dr. Daniel Fucini, AIST, Hyogo, Japan

Topics:
DNA purification and vectors
PCR and RT-PCR
Transformation and protein expression
Transfection of eukaryotic cells
Western blotting and immunoprecipitation
Southern blot, hybridization and Northern blot
Bioinformatics

Info and Applications:
Dr. Norica Niehita - Norica.Niehita@biochim.ro
Website: www.biochim.ro/ibarcourses/ReDM2005.html
Address: Splaiul Independenței 296, 060031, Bucharest 17, Romania
Phone: (+40)21.223.90.09; FAX: (+40)21.223.90.08

 Institutul de Biochimie al Academiei Romane

Workshop
**Tendinte si Directii Emergente in
Stiintele Vietii la Nivel Molecular**
in cadrul


Conferința
Diaspora în
Cercetarea
Științifică
Românească
București, 17-19 Septembrie 2006

Organizata de
Academia Romana
Agentia Nationala de Cercetare Stiintifica
Cancelaria Primului Ministru


FEBS Advanced Theoretical and Practical Course
**RECOMBINANT DNA TECHNOLOGY
AND PROTEIN EXPRESSION**
September 8 - 14, 2008
Bucharest, Romania

Organizers:
 Institute of Biochemistry of the Romanian Academy
 Romanian Society of Biochemistry & Molecular Biology


Invited Lecturers:
Professor George Galina, U.TMDACC, Texas, Houston, USA
Professor Ulrich Schwachborg, Jacobs University Bremen, Germany
Dr. Peter Tompa, Institute of Biotechnology, Budapest, Hungary
Dr. Daniel Fucini, Technische Universität München, Germany

Topics:
DNA purification and vectors
PCR and RT-PCR
Transformation and protein expression
Transfection of eukaryotic cells
Western blotting and immunoprecipitation
Southern blot, hybridization and Northern blot
Bioinformatics

Info and Applications:
Dr. Norica Niehita - Norica.Niehita@biochim.ro
Website: www.biochim.ro/ibarcourses/ReDM2008.html
Address: Splaiul Independenței 296, 060031, Bucharest 17, Romania
Phone: (+40)21.223.90.09; FAX: (+40)21.223.90.08

 Institutul de Biochimie al Academiei Romane

Workshop
**Tendinte in
Genomica și Proteomica Medicală**
în cadrul


Conferinta Diaspora
in Cercetarea Stiintifica
si Invatamantul Superior
din Romania
Bucuresti, 21-24 Septembrie

Organizata de
Președinția României
Ministerul Educației și Cercetării Științifice
Academia Română
ANCS - CALISTE TENDINTE

1952 - 2022

IBAR

A history in images

21 March 1952



Inaugurarea Institutului de Biochimie al Academiei R. P. R.

În cadrul sesiunii generale științifice a Academiei R.P.R. s'a făcut Vineri la amiază, într'un cadru festiv, inaugurarea Institutului de Biochimie al Academiei R. P. R. Au fost de față acad. prof. dr. C. I. Parhon, acad. prof. Traian Săvulescu, numeroși academicieni, membri corespondenți și colaboratori științifici ai Academiei R.P.R., precum și personalul medical și administrativ al Institutului.

În cuvântarea sa, acad. prof. Traian Săvulescu a arătat că cercetările în domeniul biochimiei trebuie să se orienteze după exemplul științei biochimice sovietice; ele trebuie să aibă la bază învățătura marxist-leninistă, principiile materialismului dialectic. Va trebui dată o mare importanță cercetărilor experimentale, pe plante și animale.

În încheiere, acad. prof. Traian Săvulescu a îndemnat pe toți colaboratorii Institutului să pună toată râvna ca cercetările lor în domeniul biochimiei să słujească poporul.

A vorbit apoi directorul Institutului de Biochimie, acad. prof. Eugen Macovschi, care a arătat că prin crearea acestui institut se pun pentru întâia oară în țara noastră temelile unei școli științifice de biochimie. Inaugurarea Institutului de

Biochimie, profund legat prin însăși menirea lui de problemele vieții, se face într'un moment de creștere a lăsterii războinice a cercurilor imperialiste setoase de moarte. Noi ne exprimăm convingerea noastră fermă că popoarele vor impune pacea pe care o doresc.

Vorbitorul a arătat că activitatea Institutului de Biochimie va avea la bază învățătura marilor savanți Pavlov și Miculin.

Ne îndreptăm cu recunoștință gândurile — a spus vorbitorul — spre marii biochimisți sovietici, academicienii Oparin și Palladin, care cu ocazia vizitelor făcute la București au luat contact cu Institutul de Biochimie încă în faza lui de formare și ne-au dat un mare ajutor prin sfaturile lor.

În încheiere, acad. E. Macovschi a mulțumit partidului și guvernului pentru ajutorul și pentru condițiile optime de lucru puse la dispoziția celor care lucrează în acest institut.

La sfârșit, acad. prof. dr. C. I. Parhon a urat celor ce muncesc în Institutul de Biochimie o muncă rodnică pentru progresul științei biologice în țara noastră.

Asistența a vizitat apoi Institutul. (Agerpres).



The Institute of Biochemistry of the Romanian Academy
Str. Docenților, Bucharest

No. 4356 April 25, 1953 NATURE 737

MOLECULAR STRUCTURE OF NUCLEIC ACIDS

A Structure for Deoxyribose Nucleic Acid

WE wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

J. D. WATSON
F. H. C. CRICK

Medical Research Council Unit for the
Study of the Molecular Structure of
Biological Systems,
Cavendish Laboratory, Cambridge.
April 2.

1952 - 1970



Cecilia Motaș, Sanda Rădulescu, **Acad. Eugen Macovschi**,
Lucia Buzila, Horst Schell, Doina Popov



Horst Schell, Florin Mihăilescu, Traian Benția, **Acad. Eugen Macovschi**,
Natalia Moldoveanu, Ștefan Hulea, Mihai Șerban, Sorin Vassu



Upper: Doina Onica, Corina Dragomirescu, Cecilia Motaș, Cornel Medeșan, Mihai Șerban
Central: Doina Popov, **Acad. Eugen Macovschi**, Sanda Rădulescu, Lili Botoșeneanu
Lower: Viorica Frunzeti, Ioana Hașima, Mioara Cârșteanu

1970 - 1990



M.Ghiordunescu, E.Ilica, N.Moldoveanu, M.Zamfir
M.Lungu, L.Botoşeanu, S.Mihăescu, Ţache, M Cârşteanu, C.Motaş
T.Benţia, L.Buzilă, R.Bârnescu, M.Muşolan, S.Vasu



Mircea Mateescu, Ofelia Gozia, Stelian Niculescu, Jana Ciopraga,
Anca Roşeanu, Irina Cornoiu

Annu. Rev. Biochem. 2014. 83:1–44
First published online as a Review in Advance on
January 15, 2014
The *Annual Review of Biochemistry* is online at
biochem.annualreviews.org
This article's doi:
10.1146/annurev-biochem-041612-095236
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Journeys in Science: Glycobiology and Other Paths

Raymond A. Dweck

Oxford Glycobiology Institute, Department of Biochemistry, University of Oxford,
Oxford OX1 3QU, United Kingdom; email: raymond.dweck@exeter.ox.ac.uk

Romania: Courage in Science Inspires Us All

Biochemistry suffered in Romania under Nicolae Ceauşescu (1974–1989) from lack of financial support and a complete blockade of scientific contacts with Western universities. Cecilia Motaş, a highly cultured and courageous biochemist, challenged the rules and attempted to promote international collaboration. After the collapse of the communist regime, Cecilia immediately took action to revive biochemistry in Romania by reestablishing an institute, of which she was director, under the auspices of the Romanian Academy.

I met Cecilia at a conference at Göteborg in 1992. She asked me to help her train her young scientists. I was moved by her example and dedication. In January 1993, Stefana and Andrei Petrescu, both postdoctoral students, came to Oxford in the first step of a lasting collaboration between Oxford's Institute of Glycobiology and Bucharest's Institute of Biochemistry. This partnership was enthusiastically supported by both the Royal Society and the Wellcome Trust, which saw the importance of trying to rebuild and promote Romanian science. This was a difficult transition in Romania for science, and the collaboration was very important. My colleagues in Oxford helped in the training of many Romanian biochemistry students.

1990 - 2000



Corina Mihail, Silvia Mihăescu, Cecilia Motaș, Lucia Buzilă, Ecaterina Ilica, Zina Moldoveanu, Daniela Bratosin



The visit in IBAR of **Prof. Jean Montreuil**, *hon. member Romanian Academy* featured along with: F.Mihăilescu, V.Gheordunescu, V.Cișmașiu, S.Mihăescu, Ș.Szedlacsek, M.Lungu, V.Oprea, E.Ilica, A.Roșeanu, C.Motaș, M.Trif and D.Bratosin - IBAR



Prof. Raymond Dwek, *Fellow of the Royal Society* awarded by the **President of Romania Emil Constantinescu** in the presence of the **President of the Romanian Academy Eugen Simion** featured also: **Prof. Tim Bloch**, USA, Cecilia Motaș & Ștefana Petrescu, IBAR

2000 - 2010



FEBS Advanced Course 2003: Attendants and IBAR Tutors



FEBS-IUBMB Meeting & FEBS Course 2005

Featuring: *Prof. P.Cresswell* FRS, Yale; *Prof. R.A.Dwek* FRS, Oxford; *Prof. H.Ploegh*, Harvard



Diaspora Workshp 2008 in IBAR

Featured: *Prof. Adrian Salic*, Harvard; *Prof. Dan Duda* Harvard; *Acad. Irinel Popescu*



FEBS Visit 2010: *Head of FEBS Prof. Israel Pecht*, Weizman Inst. and *Daniel Funeriu*, Ministry of Education
Featured also: *Norica Nichita* and *Ştefana Petrescu* IBAR

2010 Romanian Academy Award Recipients Conference "Chemistry and Life"



Visit in IBAR of
Nobel Price **Baruch Blumberg**, NASA; Prof. **Richard Lerner**, Scripps.Institute & Prof. **Raymond Dwek**, Oxford
discussing with: Ștefan Szedlaczek and Ștefana Petrescu, IBAR



Nobel Price **Baruch Blumberg**; Prof. **Richard Lerner** & Prof. **Raymond Dwek**
along with IBAR team members



.Nobel Price **Baruch Blumberg**, Prof. **Richard Lerner** & Prof. **Raymond Dwek**
received by the President of Romanian Academy - Acad. **Ionel Haiduc**

2010 - 2020



2012 Inauguration of PROCERA - Core Facility of IBAR in the presence of the *President of the Romanian Academy Ionel-Valentin Vlad*, *Prof. Raymond A.Dwek*; *Prof. Adrian Curaj*, UEFISCDI and *Prof. Dragoş Ciuparu*, State Secretary of Research



2014 Workshop " *Pathogen-informed strategies for sustainable crop resistance* " organised by IBAR



2016 IBAR Visit: *Prof. Pedro Romero*, UNIL Lausanne and *Prof.Asist. Camilla Jandus*, U.Geneve discussing with: *Stefana Petrescu*, *Gabriela Chiritoiu* and *Cristian Munteanu* IBAR

25 years anniversary
Romanian Society of Biochemistry and Molecular Biology

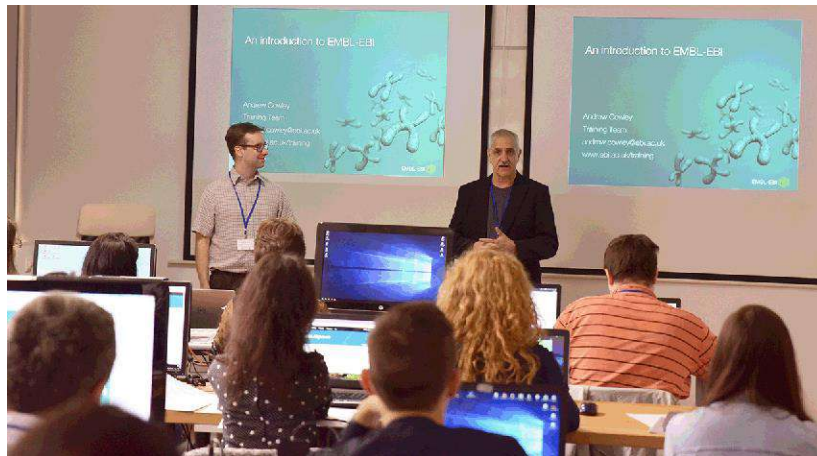


Address of Acad. Bogdan Simionescu, vicepresident of the Romanian Academy

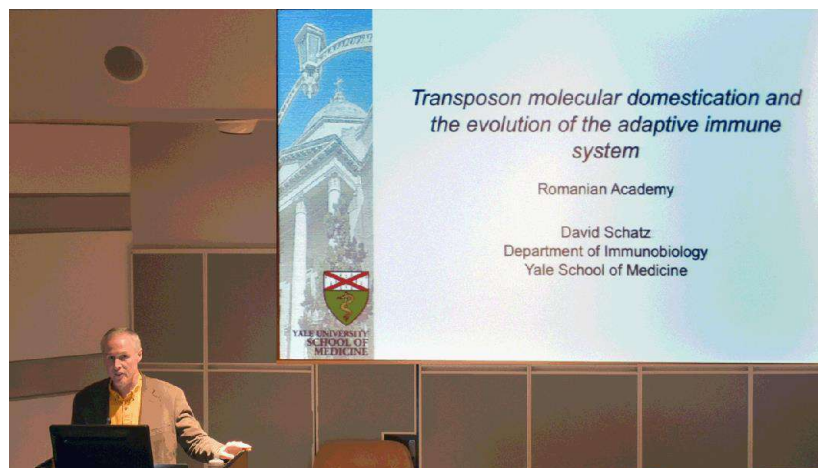
 **Romanian Society of Biochemistry and Molecular Biology 1990-2015** 
presidents, vicepresidents, secretaries



Prof. Vivek Malhotra, CRG Barcelona



2018 IBAR – EMBL-EBI Course "Training Romainan Bionformatic Trainers"
featured: Andrew Cowley, EBI Cambridge & Andrei-J Petrescu IBAR



2019 - The IBAR visit of **Prof. David Schatz**, Yale - National Academy of Science USA
Address to the Romanian Academy

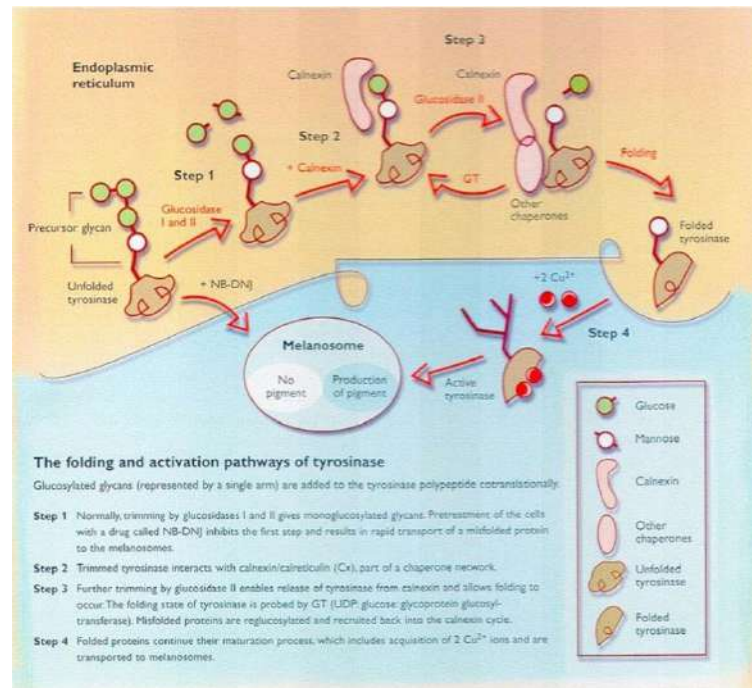
IBAR Publications

<https://www.biochim.ro/publications/>

IBAR Research in Images

Molecular Cell Biology

Glycosylation and Glycoprotein folding



Cell, Vol. 88, 29–38, January 10, 1997. Copyright ©1997 by Cell Press

Conformation-Independent Binding of Monoglucosylated Ribonuclease B to Calnexin

André Zapun,[†] Stefana M. Petrescu,^{‡§} Pauline M. Rudd,[‡] Raymond A. Dwek,[‡] David Y. Thomas,^{†||} and John J. M. Bergeron^{*}

Biochemical and Biophysical Research Communications 261, 720–725 (1999)
Article ID bbrc.1999.1030, available online at <http://www.idealibrary.com>

Tyrosinase Folding and Copper Loading *in Vivo*: A Crucial Role for Calnexin and α -Glucosidase II

N. Branza-Nichita,^{*,†} A. J. Petrescu,^{*,†} R. A. Dwek,^{*} M. R. Wormald,^{*} F. M. Platt,^{*} and S. M. Petrescu^{*,†,||}

^{*}Oxford Glycobiology Institute, Department of Biochemistry, University of Oxford, South Parks Road, Oxford OX1 3QU, United Kingdom; and [†]Institute of Biochemistry of the Romanian Academy, Splaiul Independentei 296, 77700 Bucharest 17, Romania

Biochemistry

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Volume 39, Number 18

May 9, 2000

Current Topics

Tyrosinase and Glycoprotein Folding: Roles of Chaperones That Recognize Glycans¹

Stefana M. Petrescu,^{*,2} Norica Branza-Nichita,² Gabriela Negroiu,¹ Andrei J. Petrescu,¹ and Raymond A. Dwek^{*,3,5}

¹Oxford Glycobiology Institute, Department of Biochemistry, University of Oxford, South Parks Road, Oxford OX1 3QU, U.K., and Institute of Biochemistry, Romanian Academy, Splaiul Independentei 296, 77700 Bucharest 17, Romania

Received January 19, 2000

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Vol. 272, No. 25, Issue of June 20, pp. 15796–15803, 1997
Printed in U.S.A.

Inhibition of N-Glycan Processing in B16 Melanoma Cells Results in Inactivation of Tyrosinase but Does Not Prevent Its Transport to the Melanosome^{*}

(Received for publication, February 10, 1997, and in revised form, March 15, 1997)

Stefana M. Petrescu^{‡§}, Andrei-J. Petrescu^{†||}, Haralambie N. Titu^{||}, Raymond A. Dwek, and Frances M. Platt^{||}

From the Glycobiology Institute, University of Oxford, South Parks Road, OX1 3QU Oxford, United Kingdom and the [‡]Institute of Biochemistry, Splaiul Independentei 296, 77700 Bucharest 17, Romania

THE JOURNAL OF BIOLOGICAL CHEMISTRY
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Vol. 275, No. 11, Issue of March 17, pp. 8169–8175, 2000
Printed in U.S.A.

Mutations at Critical N-Glycosylation Sites Reduce Tyrosinase Activity by Altering Folding and Quality Control^{*}

(Received for publication, November 25, 1999)

Norica Branza-Nichita^{‡§}, Gabriela Negroiu[‡], Andrei J. Petrescu^{‡§}, Elspeth F. Garman^{||}, Fran M. Platt^{||}, Mark R. Wormald[§], Raymond A. Dwek[§], and Stefana M. Petrescu^{‡§**}

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The Inhibition of Early *N*-Glycan Processing Targets TRP-2 to Degradation in B16 Melanoma Cells*

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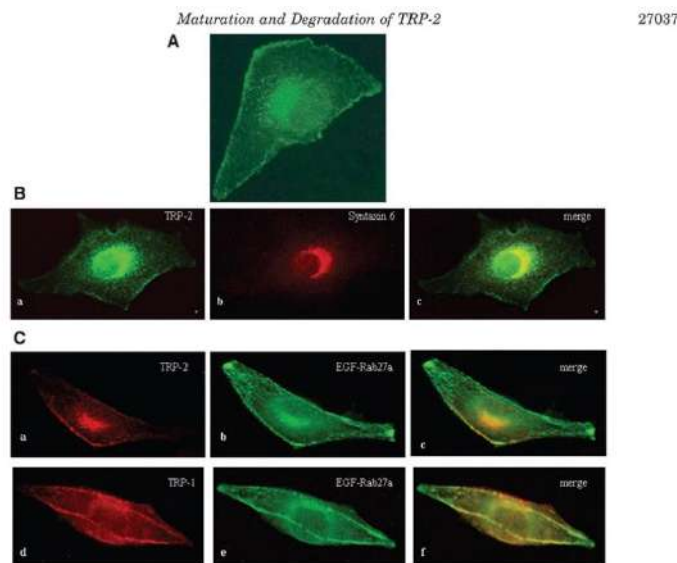


FIG. 1. TRP-2 subcellular distribution in B16 melanoma cells. *A*, cells grown on coverslips were fixed, stained for TRP-2 with α -Pep8 antibody, and detected using Alexa 488 goat anti-rabbit secondary antibodies. *B*, cells grown on coverslips were fixed and stained for TRP-2 (green fluorescence) and syntaxin 6 (red fluorescence). The yellow color observed on merged images indicates overlapping of TRP-2 with the TGN marker, syntaxin 6. *C*, cells were transiently transfected with EGF-Rab27a (panels *b* and *e*), fixed after 24 h, and stained for either TRP-2 or TRP-1 with α -Pep8 and α -Pep1, respectively. TRPs were detected with anti-rabbit IgG biotinylated followed by streptavidin Texas Red (*a* and *d*). The merged images (*c* and *f*) show that unlike TRP-1 (*f*), TRP-2 poorly co-localizes with Rab27a in peripheral punctate or filamentous structures (panel *c*).

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Soluble Tyrosinase is an Endoplasmic Reticulum (ER)-associated Degradation Substrate Retained in the ER by Calreticulin and BiP/GRP78 and Not Calnexin*[§]

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Published, JBC Papers in Press, January 27, 2005, DOI 10.1074/jbc.M413087200

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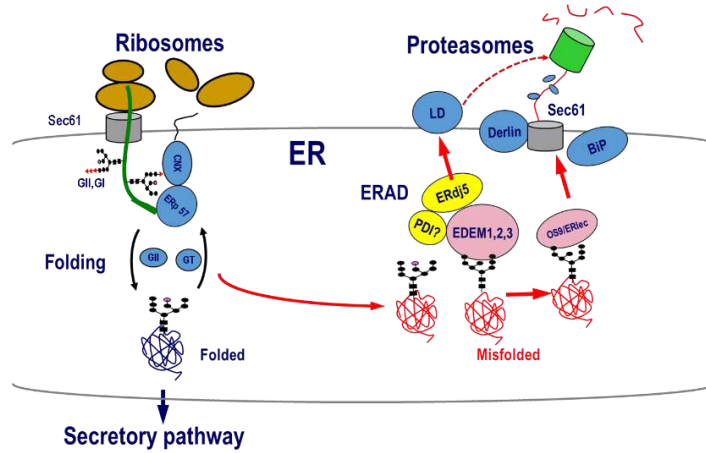
THE JOURNAL OF BIOLOGICAL CHEMISTRY VOL. 281, NO. 31, pp. 21682–21689, August 4, 2006
© 2006 by The American Society for Biochemistry and Molecular Biology, Inc. Printed in the U.S.A.

Productive Folding of Tyrosinase Ectodomain Is Controlled by the Transmembrane Anchor*[‡]

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Tyrosinase Degradation Is Prevented when EDEM1 Lacks the Intrinsically Disordered Region

Marioara B. Marin¹, Simona Ghenea¹, Laurentiu N. Spiridon², Gabriela N. Chiritoiu¹, Andrei-Jose Petrescu^{2*}, Stefana-Maria Petrescu^{1*}

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DOI: 10.1371/journal.pone.0126553

RESEARCH ARTICLE

WILEY

Novel function of the endoplasmic reticulum degradation-enhancing α -mannosidase-like proteins in the human hepatitis B virus life cycle, mediated by the middle envelope protein

Catalin Lazar¹ | Mihaela Uta¹ | Stefana Maria Petrescu² | Norica Branza-Nichita^{1*}

Cellular Microbiology 2017, 19: e126553 | wileyonlinelibrary.com/journal/cmi | © 2016 John Wiley & Sons Ltd | 1 of 14 | DOI: 10.1111/cmi.12653

 International Journal of Molecular Sciences



Article

EDEM1 Drives Misfolded Protein Degradation via ERAD and Exploits ER-Phagy as Back-Up Mechanism When ERAD Is Impaired

Marioara Chiritoiu^{1,†}, Gabriela N. Chiritoiu^{1,†}, Cristian V. A. Munteanu^{2,1,†}, Florin Pastrama², N. Erwin Ivessa³ and Stefana M. Petrescu^{1,*}

Int. J. Mol. Sci. 2020, 21, 3468; doi:10.3390/ijms21103468

www.mdpi.com/journal/ijms

Profiling Optimal Conditions for Capturing EDEM Proteins Complexes in Melanoma Using Mass Spectrometry

Cristian V. A. Munteanu, Gabriela N. Chiritoiu, Andrei-Jose Petrescu, and Ștefana M. Petrescu

© Springer Nature Switzerland AG 2019 | A. G. Woods, C. C. Durr (eds.), *Advancements of Mass Spectrometry in Biomedical Research*, *Advances in Experimental Medicine and Biology* 1140, https://doi.org/10.1007/978-3-030-15950-4_9

 International Journal of Molecular Sciences



Article

EDEM3 Domains Cooperate to Perform Its Overall Cell Functioning

Georgiana Manica¹, Simona Ghenea¹, Cristian V. A. Munteanu², Eliza C. Martin², Cristian Butnaru², Marius Surleac^{2,3}, Gabriela N. Chiritoiu¹, Petruta R. Alexandru¹, Andrei-Jose Petrescu² and Ștefana M. Petrescu^{1,*}

Int. J. Mol. Sci. 2021, 22, 2172. <https://doi.org/10.3390/ijms22042172>

<https://www.mdpi.com/journal/ijms>

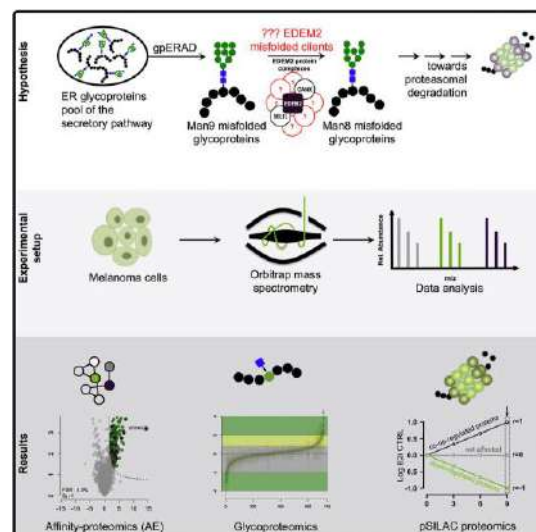
MCP RESEARCH

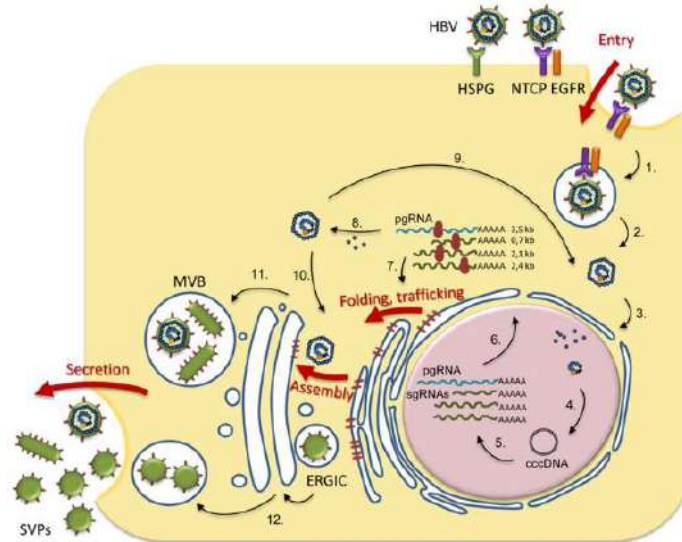
Affinity Proteomics and Deglycoproteomics Uncover Novel EDEM2 Endogenous Substrates and an Integrative ERAD Network

Authors

Cristian V. A. Munteanu, Gabriela N. Chiritoiu, Marioara Chiritoiu, Simona Ghenea, Andrei-Jose Petrescu, and Ștefana M. Petrescu

2021, Mol Cell Proteomics 20, 100125 | © 2021 THE AUTHORS. Published by Elsevier Inc on behalf of American Society for Biochemistry and Molecular Biology.





Polyunsaturated liposomes are antiviral against hepatitis B and C viruses and HIV by decreasing cholesterol levels in infected cells

Stephanie Pollock^a, Norica Branza-Nichita^b, Annette Böhrer^a, Cristina Radulescu^b, Raymond A. Dwek^a, and Nicole Zitzmann^{a,1}

^aOxford Antiviral Drug Discovery Unit, Department of Biochemistry, University of Oxford, Oxford OX1 3QU, United Kingdom; and ^bInstitute of Biochemistry, Romanian Academy, Bucharest 060031, Romania

17176-17181 | PNAS | October 5, 2010 | vol. 107 | no. 40

www.pnas.org/cgi/doi/10.1073/pnas.1009445107

The FASEB Journal • Research Communication

Uptake and trafficking of liposomes to the endoplasmic reticulum

Stephanie Pollock,* Robin Antrobus,* Laura Newton,* Bettina Kampa,* Jan Rossa,* Sally Latham,* Norica Branza-Nichita,[†] Raymond A. Dwek,* and Nicole Zitzmann^{a,1}

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1866

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JOURNAL OF VIROLOGY, Dec. 2011, p. 13373-13383
0022-538X/11/\$12.00 doi:10.1128/JVI.0105423-11
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Vol. 85, No. 24

Cholesterol Depletion of Hepatoma Cells Impairs Hepatitis B Virus Envelopment by Altering the Topology of the Large Envelope Protein[∇]

Cristina Dorobantu,¹ Alina Macovei,^{1,†} Catalin Lazar,^{1,†} Raymond A. Dwek,² Nicole Zitzmann,² and Norica Branza-Nichita^{1*}

JOURNAL OF VIROLOGY, Jan. 2010, p. 243-253
0022-538X/10/\$12.00 doi:10.1128/JVI.01207-09
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Vol. 84, No. 1

Hepatitis B Virus Requires Intact Caveolin-1 Function for Productive Infection in HepaRG Cells[∇]

Alina Macovei,¹ Cristina Radulescu,¹ Catalin Lazar,¹ Stefana Petrescu,¹ David DuranTEL,² Raymond A. Dwek,³ Nicole Zitzmann,³ and Norica Branza-Nichita^{1*}

Molecular Virology

Hepatitis B research and therapy strategies



Plant Biotechnology Journal

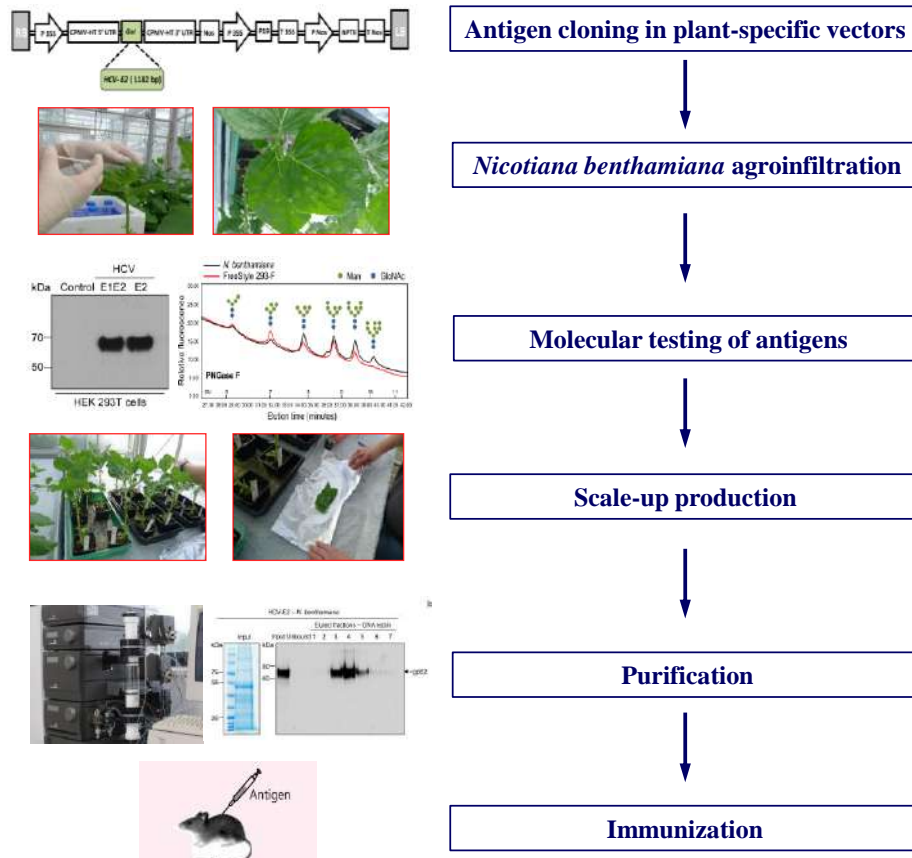
Plant Biotechnology Journal (2017) 15, pp. 1611–1621

doi: 10.1111/pbi.12743

Lettuce-produced hepatitis C virus E1E2 heterodimer triggers immune responses in mice and antibody production after oral vaccination

Jihong Liu Clarke^{1,*}, Lisa Paruch¹, Mihaela-Olivia Dobrica², Iuliana Caras³, Catalin Tucureanu³, Adrian Onu³, Sonya Ciulean³, Crina Stavaru³, Andre Eerde¹, Yanliang Wang¹, Hege Steen¹, Sissel Haugslie¹, Catalina Petrareanu², Catalin Lazar², Costin-Ioan Popescu², Ralph Bock⁴, Jean Dubuisson⁵ and Norica Branza-Nichita^{2,*}

Viral antigen production in plants



Plant Biotechnology Journal

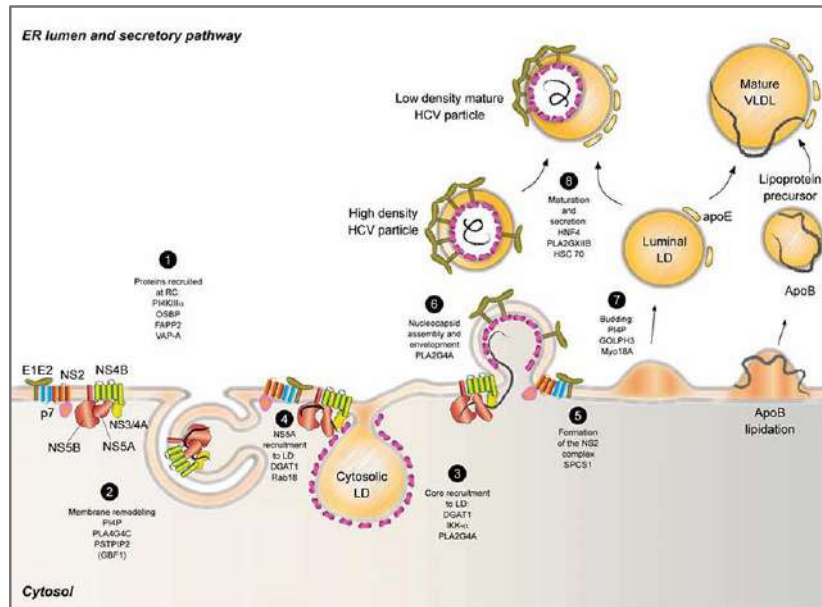
 

Plant Biotechnology Journal (2021) 19, pp. 2027–2039

doi: 10.1111/pbi.13631

Hepatitis C virus E2 envelope glycoprotein produced in *Nicotiana benthamiana* triggers humoral response with virus-neutralizing activity in vaccinated mice

Mihaela-Olivia Dobrica¹, André van Eerde², Catalin Tucureanu³, Adrian Onu³, Lisa Paruch², Iuliana Caras³, Ene Vlase³, Hege Steen², Sissel Haugslie², Dominic Alonzi⁴, Nicole Zitzmann⁴, Ralph Bock⁵, Jean Dubuisson⁶, Costin-Ioan Popescu¹, Crina Stavaru^{3,*}, Jihong Liu Clarke^{2,*} and Norica Branza-Nichita^{1,*}



Viruses 2011, 3, 2238-2254; doi: 10.3390/v3112238

Hepatitis C Virus Assembly Imaging

Costin-Ioan Popescu ^{1,*}, Yves Rouillé ² and Jean Dubuisson ²

viruses

ISSN 1999-4915

www.mdpi.com/journal/viruses

OPEN ACCESS Freely available online

PLoS PATHOGENS

NS2 Protein of Hepatitis C Virus Interacts with Structural and Non-Structural Proteins towards Virus Assembly

Costin-Ioan Popescu ^{1,2}, Nathalie Callens ¹, Dave Trinel ³, Philippe Roingear ⁴, Darius Moradpour ⁵, Véronique Descamps ⁶, Gilles Duverlie ⁶, François Penin ⁷, Laurent Hélot ³, Yves Rouillé ¹, Jean Dubuisson ^{1,*}

PLoS Pathogens | www.plospathogens.org

1

February 2011 | Volume 7 | Issue 2 | e1001278

Biology 2014, 3, 892-921; doi:10.3390/biology3040892

www.mdpi.com/journal/biology

Hepatitis C Virus Life Cycle and Lipid Metabolism

Costin-Ioan Popescu ¹, Laura Riva ², Ovidiu Vlaicu ¹, Rayan Farhat ², Yves Rouillé ² and Jean Dubuisson ^{2,*}

biology

ISSN 2079-7737

Journal of Virological Methods 246 (2017) 42–50



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Novel replicons and *trans*-encapsidation systems for Hepatitis C Virus proteins live imaging and virus-host interaction proteomics

Ovidiu Vlaicu ^a, Tudor Selescu ^{a,b}, Florin Pastrama ^a, Cristian Munteanu ^a, Laura Riva ^c, Jean Dubuisson ^c, Yves Rouille ^c, Costin-Ioan Popescu ^{a,c,*}



Enzymology

The structure of protein tyrosin phosphataes and cellular signaling

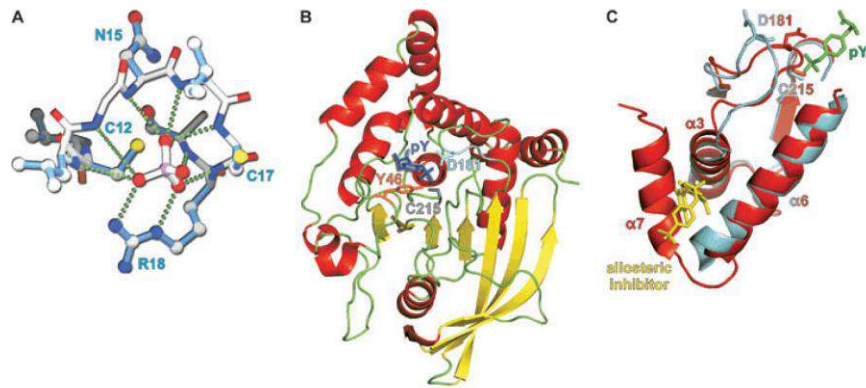


Fig. 1. (A) Structure of the phosphate-binding loop (P-loop). Stick representation of the consensus signature motif (CX₆R) that forms the P-loop present in the active site of PTPs. The P-loop from bovine LMW-PTP (1PNT) [79] is represented and the catalytic Cys12 and Arg18 are labelled. The amide nitrogens form hydrogen-bond interactions (dotted green lines) with the phosphatase bound showing network of interactions that involve the catalytic Arg. The cradle-like conformation of the P-loop is conserved in the structures of all PTPs.

doi:10.1006/jmbi.2001.4890 available online at <http://www.idealibrary.com on> **FEBS J.** Mol. Biol. (2001) 311, 557–568

JMB



Crystal Structure of PTP-SL/PTPBR7 Catalytic Domain: Implications for Map Kinase Regulation
Stefan E. Szedlacsek^{1*}, Alexandru R. Aricescu¹, Tudor A. Fulga¹, Louis Renault² and Axel J. Scheidig²

MINIREVIEW

Protein tyrosine phosphatases: structure–function relationships

FEBS Journal

Lydia Tabernero¹, A. Radu Aricescu², E. Yvonne Jones² and Stefan E. Szedlacsek³

FEBS Journal 275 (2008) 867–882 © 2008 The Authors Journal compilation © 2008 FEBS

867

SCIENTIFIC REPORTS

OPEN

WDR1 is a novel EYA3 substrate and its dephosphorylation induces modifications of the cellular actin cytoskeleton

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Mihaela Mentel¹, Aura E. Ionescu², Ioana Pucicau-Girtu³, Martin S. Helm³, Rodica A. Badea³, Silvio O. Rizzoli³ & Stefan E. Szedlacsek³

SCIENTIFIC REPORTS | (2018) 8:29397 | DOI:10.1038/s41598-018-21155-w

International Journal of
Molecular Sciences

MDPI

Analysis of EYA3 Phosphorylation by Src Kinase Identifies Residues Involved in Cell Proliferation

Aura E. Ionescu¹, Mihaela Mentel^{1,†}, Cristian V.A. Munteanu², Livia E. Sima³, Eliza C. Martin², Georgiana Necula-Petrescu¹ and Stefan E. Szedlacsek^{1,*}

Int. J. Mol. Sci. 2019, 20, 6307; doi:10.3390/ijms20246307

www.mdpi.com/journal/ijms

Journal of Structural Biology 207 (2019) 85–102

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Journal of Structural Biology

journal homepage: www.elsevier.com/locate/yjsbi



Crystal structure of a xylulose 5-phosphate phosphoketolase. Insights into the substrate specificity for xylulose 5-phosphate

A.J. Scheidig^a, D. Horvath^b, S.E. Szedlacsek^{c,*}

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DOI: 10.1002/jcp.29397

ORIGINAL RESEARCH ARTICLE

Journal of Cellular Physiology **WILEY**

Regulation of TRPM8 channel activity by Src-mediated tyrosine phosphorylation

Alexandra Manolache¹ | Tudor Selescu¹ | G. Larisa Maier¹ | Mihaela Mentel² |
Aura Elena Ionescu² | Cristian Neacsu¹ | Alexandru Babes¹ | Stefan Eugen Szedlacsek²

J Cell Physiol. 2019;1–12.

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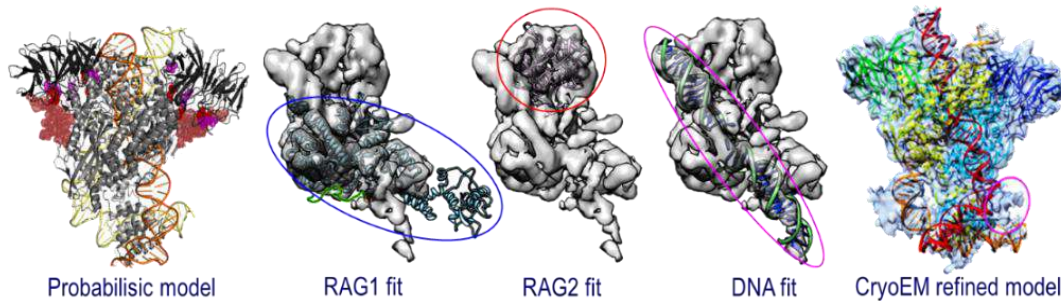
ARTICLE

<https://doi.org/10.1038/s41586-019-1093-7>

Transposon molecular domestication and the evolution of the RAG recombinase

Yuhang Zhang^{1,8}, Tat Cheung Cheng^{2,8}, Guangrui Huang³, Qingyi Lu³, Marius D. Surleac⁴, Jeffrey D. Mandell¹, Pierre Pontarotti^{5,6}, Andrei J. Petrescu⁴, Anlong Xu^{3,7*}, Yong Xiong^{2*} & David G. Schatz^{1*}

NATURE | www.nature.com/nature



Martin *et al. Mobile DNA* (2020) 11:17
<https://doi.org/10.1186/s13100-020-00214-y>

Mobile DNA

RESEARCH

Open Access

Identification of RAG-like transposons in protostomes suggests their ancient bilaterian origin

Eliza C. Martin^{1†}, Célia Vicari^{2†}, Louis Tsakou-Ngouafo², Pierre Pontarotti^{2,3*}, Andrei J. Petrescu^{1*} and David G. Schatz^{4*}

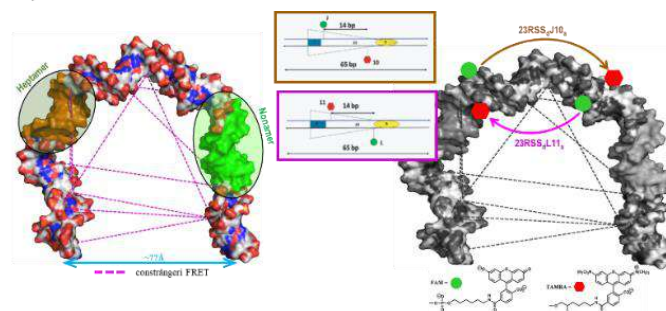


Published online 4 January 2013

Nucleic Acids Research, 2013, Vol. 41, No. 4 2437–2454
[doi:10.1093/nar/gks1294](https://doi.org/10.1093/nar/gks1294)

RAG and HMGB1 create a large bend in the 23RSS in the V(D)J recombination synaptic complexes

Mihai Ciubotaru^{1,2,3}, Adam J. Trexler⁴, Laurentiu N. Spiridon⁵, Marius D. Surleac⁵, Elizabeth Rhoades⁴, Andrei J. Petrescu⁵ and David G. Schatz^{1,4,6,*}



Structural Immunobiology. The innate system
Structure function relation in plant host-pathogen systems



Cell Host & Microbe

Article



Coiled-Coil Domain-Dependent Homodimerization of Intracellular Barley Immune Receptors Defines a Minimal Functional Module for Triggering Cell Death

Takaki Maekawa,^{1,6} Wei Cheng,^{2,3,6} Laurentiu N. Spiridon,⁴ Armin Töller,¹ Ewa Lukasik,⁵ Yusuke Saijo,¹ Peiyuan Liu,³ Qian-Hua Shen,⁶ Marius A. Micluta,⁴ Imre E. Somssich,¹ Frank L.W. Takken,⁵ Andrei-Jose Petrescu,⁴ Jijie Chai,^{3,7,*} and Paul Schulze-Lefert^{1,*}

Cell Host & Microbe 9, 187–199, March 17, 2011 ©2011 Elsevier Inc. 187

Structural Determinants at the Interface of the ARC2 and Leucine-Rich Repeat Domains Control the Activation of the Plant Immune Receptors Rx1 and Gpa2^{1CIIWJIOA}

Erik J. Slootweg^{2,*}, Laurentiu N. Spiridon², Jan Roosien, Patrick Butterbach, Rikus Pomp, Lotte Westerhof, Ruud Wilbers, Erin Bakker, Jaap Bakker, Andrei-José Petrescu, Geert Smant, and Aska Goverse

1510 *Plant Physiology*, July 2013, Vol. 162, pp. 1510–1528, www.plantphysiol.org © 2013 American Society of Plant Biologists. All Rights Reserved.



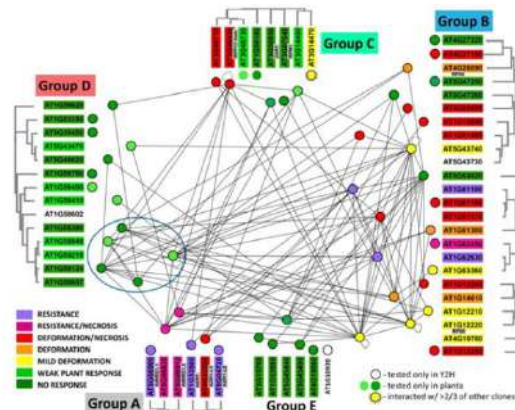
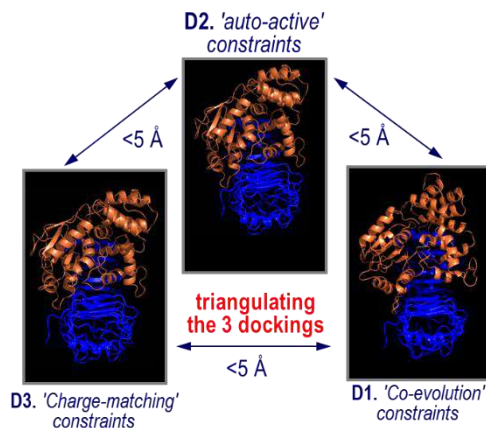
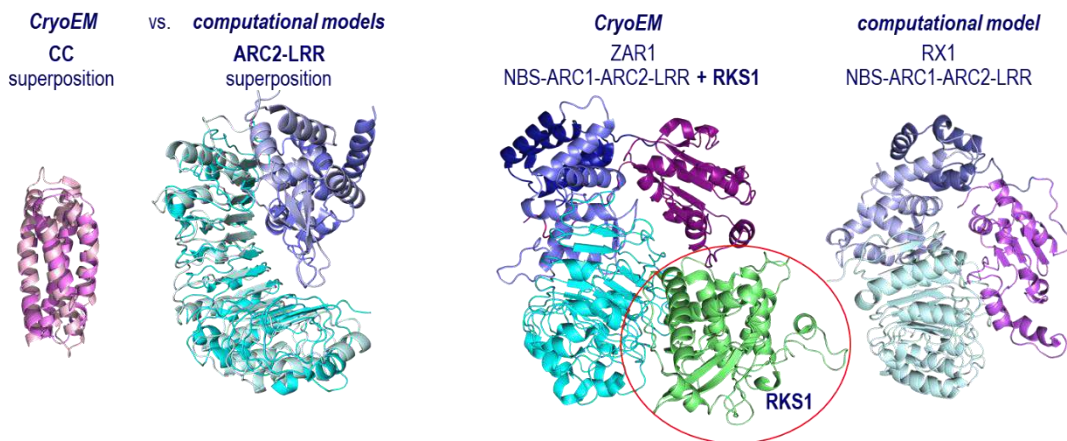
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RESEARCH ARTICLE

Citation: Wróblewski T, Spiridon L, Martin EC, Petrescu A-J, Cavanaugh K, Truco MJ, et al. (2018) Genome-wide functional analyses of plant coiled-coil NLR-type pathogen receptors reveal essential roles of their N-terminal domain in oligomerization, networking, and immunity. *PLoS Biol* 16(12): e2005821. <https://doi.org/10.1371/journal.pbio.2005821>

Genome-wide functional analyses of plant coiled-coil NLR-type pathogen receptors reveal essential roles of their N-terminal domain in oligomerization, networking, and immunity

Tadeusz Wróblewski^{1,*}, Laurentiu Spiridon², Eliza Cristina Martin², Andrei-Jose Petrescu², Keri Cavanaugh¹, Maria José Truco¹, Huaqin Xu¹, Dariusz Gozdowski³, Krzysztof Pawłowski³, Richard W. Michelmore^{1,4,5}, Frank L.W. Takken^{6*}



Structural Glycobiology

Glycan and Glycoprotein Bioinformatics & Molecular modeling

Chem. Rev. 2002, 102, 371–386

371

Conformational Studies of Oligosaccharides and Glycopeptides: Complementarity of NMR, X-ray Crystallography, and Molecular Modelling

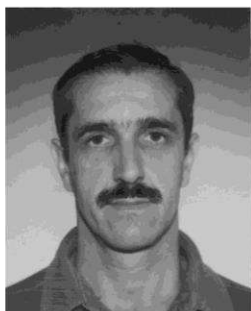
Mark R. Wormald,^{*,†} Andrei J. Petrescu,^{†,‡} Ya-Lan Pao,[†] Ann Glithero,^{†,§} Tim Elliott,^{§,#} and Raymond A. Dwek[†]

372 Chemical Reviews, 2002, Vol. 102, No. 2

Wormald et al.



Dr. Mark Wormald is a University Research Lecturer in the Department of Biochemistry, Oxford University, and is a Fellow in Biochemistry and Chemistry at Corpus Christi College, Oxford. He graduated with a degree in chemistry from Oxford University in 1985, followed by a D.Phil. in the Inorganic Chemistry Laboratory (doing a mixture of physics, biophysics, and bioinorganic chemistry) with Prof. R. J. P. Williams, FRS. He moved to the then Oxford Oligosaccharide Group in 1989 to work with Prof. R. A. Dwek, FRS, on the conformations of oligosaccharides by NMR spectroscopy. From 1990 to 1993, he held a Junior Research Fellowship at Corpus Christi College, Oxford. He is currently running the structural glycobiology group in the Oxford Glycobiology Institute, his main interests being in the conformations and dynamics of oligosaccharides, glycopeptides, and glycoproteins.



Dr. Andrei-J. Petrescu is a graduate in biophysics from the University of Bucharest. This was followed by postdoctoral positions in the Department of Biochemistry, University of Oxford, UK, and at the Centre de Etudes Atomique, Saclay, France. He is a member of the Oxford Glycobiology Institute and head of the Structural Biochemistry Group of the Biochemistry Institute of the Romanian Academy. He has been involved in developing physical methods for the study of unfolded states of proteins. He determined the structures of glucosylated oligomannose glycans specific to the early glycosylation stages in the ER and has contributed to the characterization of the glycan recognition elements of glycoproteins by lectin-like chaperones during glycoprotein folding. Currently, he is working on the development of a database of structural information on glycoproteins.



Professor Raymond Dwek is Professor of Glycobiology, Director of the Glycobiology Institute, and Head of the Department of Biochemistry, Oxford University. He is a Professorial Fellow at Exeter College, Oxford. He obtained his B.Sc. (1963) and M.Sc. (1964) degree at Manchester University and his D.Phil. (1966) degree in Oxford. He founded the Glycobiology Institute at Oxford University in 1991 and has received several awards for his work on glycobiology, including the 7th Wellcome Trust Award for Research in Biochemistry Related to Medicine and the First Scientific Leadership Award, Hepatitis B Foundation, Philadelphia, PA. He is a member of the European Molecular Biology Organization and Fellow of the Royal Society. In 1996, Professor Dwek was awarded a Doctoris Honoris Causa by the Katholieke Universiteit, Leuven, Belgium, for his research contributions to NMR, antibodies, and glycobiology. In 2000, he was awarded the National Romanian Order for merit with rank of Commander for his major contribution to the Romanian–British cooperation in biochemistry and molecular biology, and this year has been awarded the Doctor Philosophiae Honoris Causa from the Ben-Gurion University of the Negev, Israel, for his pioneering work in glycobiology.

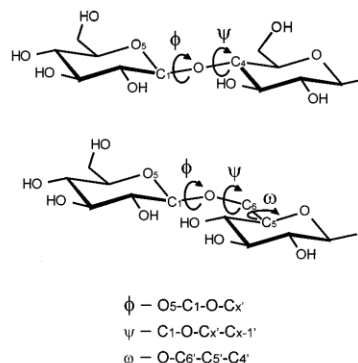


Figure 1. Schematic diagrams of a 1–4 linkage (upper) and 1–6 linkage (lower) showing the torsion angles that need to be determined to characterize the linkage conformation.



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Structural aspects of glycomes with a focus on N-glycosylation and glycoprotein folding

Andrei-José Petrescu¹, Mark R Wormald² and Raymond A Dwek²

Structural Biology

Modeling molecular structures and interactions in Biology

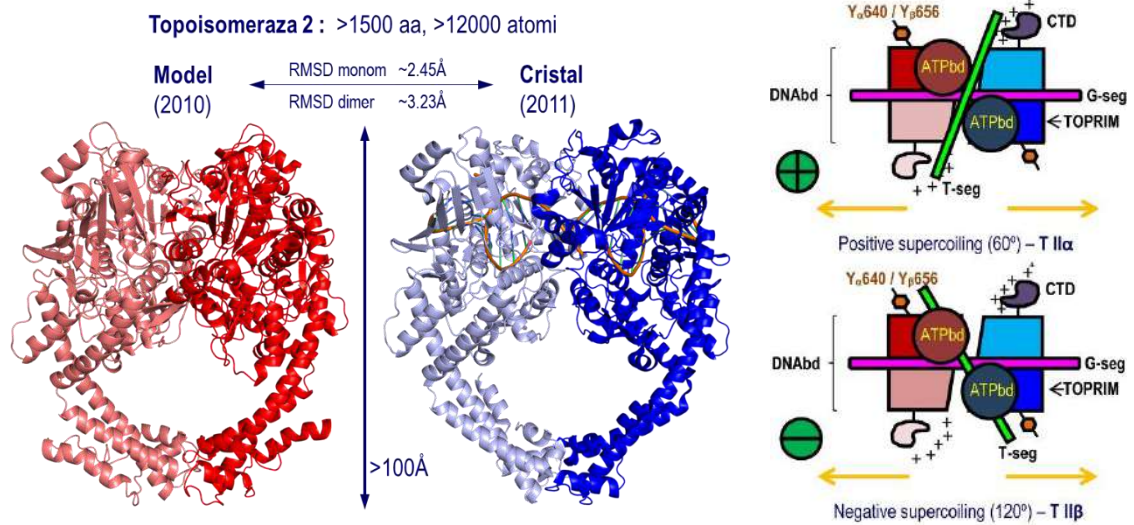


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Nucleic Acids Research, 2017, Vol. 45, No. 10 5995–6010

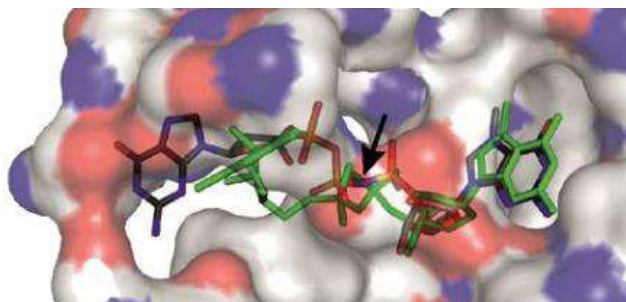
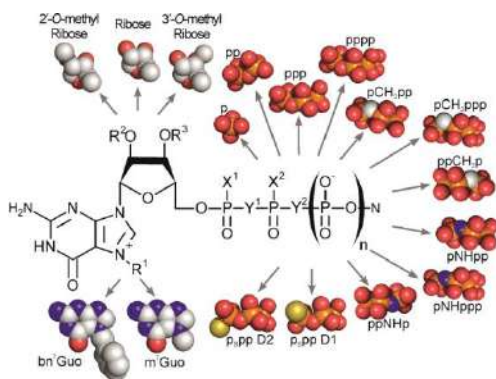
Roles of the C-terminal domains of topoisomerase II α and topoisomerase II β in regulation of the decatenation checkpoint

Toshiyuki Kozuki^{1,†}, Kenichi Chikamori^{1,†}, Marius D. Surleac^{2,†}, Marius A. Micluta², Andrei J. Petrescu², Eric J. Norris³, Paul Elson¹, Gerald A. Hoeltge⁴, Dale R. Grabowski¹, Andrew C.G. Porter⁵, Ram N. Ganapathi^{3,*} and Mahrukh K. Ganapathi^{3,*}



FEBS Journal
Analysis of decapping scavenger cap complex using modified cap analogs reveals molecular determinants for efficient cap binding
 Anna Wypijewska del Nogal¹, Marius D. Surleac², Joanna Kowalska¹, Maciej Lukaszewicz¹, Jacek Jermielty^{1,3}, Martin Bisailon⁴, Edward Darzynkiewicz¹, Adina L. Milac² and Elzbieta Bojarska¹
 FEBS Journal 290 (2013) 6508–6527 © 2013 FEBS

Biochimica et Biophysica Acta 1839 (2014) 452–462
 Contents lists available at ScienceDirect
Biochimica et Biophysica Acta
 journal homepage: www.elsevier.com/locate/bbagrm
 Decapping Scavenger (DcpS) enzyme: Advances in its structure, activity and roles in the cap-dependent mRNA metabolism
 Adina L. Milac², Elzbieta Bojarska^{1,*}, Anna Wypijewska del Nogal^{1,*,**}

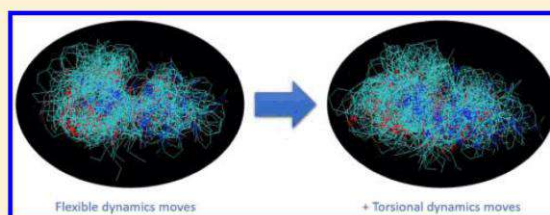




Hamiltonian Monte Carlo with Constrained Molecular Dynamics as Gibbs Sampling

 Laurentiu Spiridon^{*,†,‡} and David D. L. Minh^{*,†}

ABSTRACT: Compared to fully flexible molecular dynamics, simulations of constrained systems can use larger time steps and focus kinetic energy on soft degrees of freedom. Achieving ergodic sampling from the Boltzmann distribution, however, has proven challenging. Using recent generalizations of the equipartition principle and Fixman potential, here we implement Hamiltonian Monte Carlo based on constrained molecular dynamics as a Gibbs sampling move. By mixing Hamiltonian Monte Carlo based on fully flexible and torsional dynamics, we are able to reproduce free energy landscapes of simple model systems and enhance sampling of macrocycles.



Robosample: A rigid-body molecular simulation program based on robot mechanics

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LRRpredictor—A New LRR Motif Detection Method for Irregular Motifs of Plant NLR Proteins Using an Ensemble of Classifiers

 Eliza C. Martin¹, Octavina C. A. Sukarta², Laurentiu Spiridon¹, Laurentiu G. Grigore³, Vlad Constantinescu¹, Robi Tacutu¹, Aska Goverse^{2,*} and Andrei-Jose Petrescu^{1,*}

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Biocomputing and Bioinformatics

Database Development



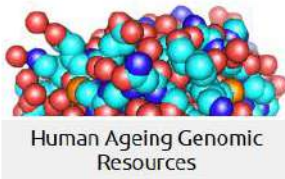
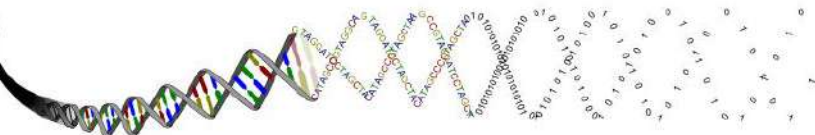
Nucleic Acids Research, 2018, Vol. 46, Database issue D1083–D1090

Human Ageing Genomic Resources: new and updated databases

Robi Tacutu^{1,2,†}, Daniel Thornton^{1,†}, Emily Johnson^{1,†}, Arie Budovsky^{3,4,†}, Diogo Barardo^{5,6}, Thomas Craig¹, Eugene Diana¹, Gilad Lehmann³, Dmitri Toren³, Jingwei Wang¹, Vadim E. Fraifeld³ and João P. de Magalhães^{1,*}

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SynergyAge, a curated database for synergistic and antagonistic interactions of longevity-associated genes

Gabriela Bunu^{1,7}, Dmitri Toren^{1,2,7}, Catalin-Florentin Ion¹, Diogo Barardo³, Larisa Sârghie¹, Laurentiu Gabriel Grigore⁴, João Pedro de Magalhães⁵, Vadim E. Fraifeld² & Robi Tacutu^{1,6}✉

Biogerontology (2020) 21:763–771
<https://doi.org/10.1007/s10522-020-09892-w>



RESEARCH ARTICLE

MetaboAge DB: a repository of known ageing-related changes in the human metabolome

Teodora Bucaciuc Mracica · Anca Anghel · Catalin Florentin Ion · Corina Violeta Moraru · Robi Tacutu  · Gligor Andrei Lazar



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 DOI: 10.1080/08982100701530027

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Designing Lipid Nanostructures for Local Delivery of Biologically Active Macromolecules

MIHAELA TRIF,¹ ANCA ROSEANU,¹ JEREMY H. BROCK,²
 AND JAMES M. BREWER²

Biometals (2010) 23:485–492
 DOI 10.1007/s10534-010-9312-6

Liposomalization of lactoferrin enhanced its anti-tumoral effects on melanoma cells

Anca Roseanu · Paula E. Florian · Magdalena Moisei · Livia E. Sima · Robert W. Evans · Mihaela Trif

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Differentiation of mesenchymal stem cells onto highly adherent radio frequency-sputtered carbonated hydroxylapatite thin films

Livia E. Sima,¹ George E. Stan,² Constantin O. Morosanu,² Alina Melinescu,³
 Adelina Ianculescu,³ Razvan Melinte,⁴ Johny Neamtu,⁵ Stefana M. Petrescu¹

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J Tissue Eng Regen Med (2011)
 Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/term.507

RESEARCH ARTICLE

Dermal cells distribution on laser-structured ormosils[†]

L. E. Sima^{1*}, E. C. Buruiana², T. Buruiana², A. Matei³, G. Epurescu³, M. Zamfirescu³, A. Moldovan³,
 S. M. Petrescu¹ and M. Dinescu³



materials



Human Mesenchymal Stem Cell Response to Lactoferrin-based Composite Coatings

Madalina Icriverzi^{1,2}, Anca Bonciu^{3,4}, Laurentiu Rusen³, Livia Elena Sima¹, Simona Brajnicov³,
 Anisoara Cimpean², Robert W. Evans⁵, Valentina Dinca^{3,*} and Anca Roseanu^{1,*}

Materials 2019, 12, 3414; doi:10.3390/ma12203414

www.mdpi.com/journal/materials



materials



Salecan-Clay Based Polymer Nanocomposites for Chemotherapeutic Drug Delivery Systems; Characterization and In Vitro Biocompatibility Studies

Paula Ecaterina Florian^{1,*}, Madalina Icriverzi^{1,*}, Claudia Mihaela Ninciuleanu², Elvira Alexandrescu²,
 Bogdan Trica², Silviu Preda³, Raluca Ianchis^{2,*} and Anca Roseanu^{1,*}

Materials 2020, 13, 5389; doi:10.3390/ma13235389

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ORIGINAL RESEARCH
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Functionalized Graphene Oxide Thin Films for Anti-tumor Drug Delivery to Melanoma Cells

Livia E. Sima^{*,} Gabriela Chiritoiu¹, Irina Negut¹, Valentina Grumezescu^{*,}
 Stefana Orobeli^{1,2}, Cristian V. A. Munteanu¹, Felix Sima¹ and Emanuel Axente^{1*}

Frontiers in Chemistry | www.frontiersin.org

March 2020 | Volume 8 | Article 184



Mechanisms and Pharmaceutical Action of Lipid Nanoformulation of Natural Bioactive Compounds as Efficient Delivery Systems in the Therapy of Osteoarthritis

Oana Craciunescu¹, Madalina Icriverzi², Paula Ecaterina Florian², Anca Roseanu² and Mihaela Trif^{2,*}

Pharmaceutics 2021, 13, 1108. https://doi.org/10.3390/pharmaceutics13081108

https://www.mdpi.com/journal/pharmaceutics