

**NIKOLAOS BALATSOS**  
**CURRICULUM VITAE**

Date of birth: 28 November 1969  
Nationality: Hellenic  
Marital status: married, four sons  
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**POSITIONS AND EDUCATION**

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- 2013-today:** Assistant Professor, Biochemistry. Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Hellas.
- 2007-2013:** Lecturer, Biochemistry. Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Hellas.
- 2003-2007:** Teaching Lecturer/Assistant Professor, Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Hellas.
- 2000-2002:** Postdoctoral Research Associate, Uppsala University, Department of Cell and Molecular Biology, Biomedical Center, Uppsala, Sweden.
- 1999-2000** Postdoctoral Research Associate, Department of Biochemistry and Molecular Biology, Papanikolaou Research Center, "St Savvas" Hospital, Athens, Hellas.
- 12002-2003** Postdoctoral Research Associate, NCSR "Demokritos", Institute of Biology, Aghia Paraskevi Attikis, Hellas.
- 2003-2006** BSRC "Alexander Fleming, Institute of Molecular Biology & Genetics, Varkiza, Hellas.
- 1999:** Ph.D. in Biological Chemistry (Cum Laude), University of Athens, Department of Biological Chemistry, School of Medicine, Athens, Hellas.
- 1993:** Diploma in Chemistry, University of Athens, Athens, Hellas.

**FELLOWSHIPS**

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- 2002-2003** NCSR «Demokritos» Associate Researcher.
- 2000-2002** Swedish Science Foundation: Postdoctoral research in Uppsala University, Biomedical Centre, BMC.
- 1993-1997** General Secretary of Research and Development: Fellowship for Ph.D. thesis on mechanisms affecting mRNA stability.
- 1994** N.A.T.O. Fellowship for the International Summer School on Molecular and Cellular Biology, Spetsai, Hellas.
- 1995** FEBS: Fellowship for "FEBS Advanced practical and lecture course: Isolation and Immunochemical characterization of RNP-particles". 21-25 September 1995, Athens, Hellas.

**1997, 1999, 2001** European Science Foundation, ESF: Fellowships for mRNA metabolism European conferences.

**1996-1997** International Society for Interferon and Cytokine Research, ISICR: Fellowship for participation in conferences for basic and applied medical research.

## TEACHING EXPERIENCE

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### Undergraduate teaching

**2003-present** Department of Biochemistry and Biotechnology, School of Health Sciences, University of Thessaly, Larissa, Greece.

Teaching of “Biosynthesis of macromolecules; Regulation of gene expression”, “Biochemistry I”, “Biochemistry I, Practicals”, “Biochemistry II”, “Biochemistry II, Practicals”, “Enzymology”, “Regulation of metabolism at the molecular level”, “Biochemistry of cell damage and protection”, “Molecular Pharmacology” and “Cell culture technology”.

### Postgraduate teaching

Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Greece.

Teaching at Masters programmes:

- “Biotechnology - Quality Assessment in Nutrition and the Environment”:  
*Course «Clinical Biochemistry-Biochemical markers».*  
*Course «Quantitative and qualitative methods of analysis-Biomarkers».*
- “Molecular Biology and Genetics Applications-Diagnostic Markers”,  
*Applications Course «Molecular diagnostics of cancer»* (responsible for the course).  
*Applications Course «Applications in pharmacogenomics».*  
*Basic Course «Oncogenes, RNA and cancer»*
- “Bioentrepreneurship”  
*Course «Biochemical and molecular diagnostics»* (co-responsible for the course).

Medical School, School of Health Sciences, School of Health Sciences, University of Thessaly, Larissa, Greece.

- “Primary Health Care”  
*Course «Biomedical communication».*

**2002** Uppsala University, Biomedical Center, Uppsala, Sweden. Teaching and lab practicals of “Chemical Biology”.

**2002** Uppsala University, Biomedical Center, Department of Cell and Molecular Biology, Uppsala, Sweden. Collaboration in PhD thesis entitled: “Oligomeric structure and cap-binding site determination of poly(A)-specific ribonuclease”.

**1993-1995** “Apostolos Pavlos – KAT” Hospital, School of Nursing, Athens, Greece. Teaching of “General Chemistry” and “Biochemistry”.

## THESES SUPERVISION

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### PhD Theses

Supervision of three PhD students.

Member of PhD Advisory Committees

- Participation in three three-member committees; two defended in 2016.
- Participation in two seven-member committees; defended in 2014 and 2016, respectively.

### Master and undergraduate theses

Supervision of 20 Master and 28 undergraduate theses.

## INVITED SPEAKER

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“Poly(A) Tales: the role of deadenylases in mRNA degradation and human diseases”.

2<sup>nd</sup> Summer School on Proteins. National and Kapodistrian University of Athens, Department of Biology. May 20<sup>th</sup>, 2012, Athens.

“Tales from poly(A) tails: Deadenylases and the control of mRNA turnover”. University of Trento, June 8, 2009, Trento, Italy.

“Poly(A) polymerase cytoplasmic activity and isoform following exposure to rIFN- $\alpha$  and 5-FU”. International conference on Interferons. Biology and Clinical applications. March 16-18, 1998, Venice, Italy.

“Poly(A) Polymerase forms and activity alterations in HeLa and WISH cells treated with 5-fluorouracil”. 1<sup>st</sup> TMR Network regular meeting on Mammalian mRNA poly(A) tails. Formation, removal and function. 23-25 January 1998, Athens, Hellas.

## AWARDS

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**2015** Hellenic Thoracic Society, Award (2<sup>nd</sup>) for best publications in international peer-reviewed journal.

**2015** Hellenic Thoracic Society, Award for Research Fellowship for the proposal «MicroRNAs that modulate deadenylase expression in lung cancer».

**2011** Hellenic Thoracic Society, Award for Research Fellowship for the proposal «Studies on the biological significance of deadenylases in lung cancer».

**2004** 2004 FASEB Summer Research Conferences. Post-transcriptional Control of Gene Expression: Mechanisms of mRNA Decay. 26 June-1 July 2004, Tucson, Arizona, USA.  
Best poster presentation.  
Nilsson P., Balatsos N.A.A. and Virtanen A. "The mRNA cap-binding site of Poly(A)-specific ribonuclease (PARN)".

## FUNDING, RESEARCH AND ACADEMIC GRANTS

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Ministry of Development and Investments, European Social Fund (ESF) «Studies on the role of poly(A)-specific ribonuclease in circadian gene expression». Principal Investigator

OMIC-Engine in the frame of “Competitiveness, Entrepreneurship and Innovation 2014-2020” (EPAnEK) Operational Program. Participation with the project “Development of a system for the study of the impact of circadian rhythms in mammals”.

Hellenic Thoracic Society, «Studies on the role of deadenylases in lung cancer». Principal Investigator.

Hellenic Thoracic Society, «MicroRNAs that modulate deadenylase expression in lung cancer». Principal Investigator.

Research Committee, «Studies on function and structure of poly(A) specific ribonuclease, PARN». Grant No. 3743. Principle Investigator.

Funding from the Masters Programmes “Biotechnology-Quality Assessment in Nutrition and the Environment” and “Application of Molecular Biology-Genetics”. Department of Biochemistry and Biotechnology, University of Thessaly.

## PARTICIPATION IN RESEARCH AND ACADEMIC GRANTS

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- 2016-today** COST Action CA15126 “Between Atom and Cell: Integrating Molecular Biophysics Approaches for Biology and Healthcare (MOBIEU)”. National Representative.
- 2015 – today** COST Action BM1207. “Networking towards clinical application of antisense-mediated exon skipping”. National Representative.
- 2011 – 2015** COST Action TD1007. “Bimodal PET-MRI molecular imaging technologies and applications for *in vivo* monitoring of disease and biological processes”. National Representative.
- 1999-2000** Post-doctoral researcher. Department of Biochemistry and Molecular Biology, Papanikolaou Research Center, "St. Savvas" Hospital, Athens, Hellas. Participation in Program ERBFMRX CT960096 EU [TMR Network on Mammalian mRNA poly (A) tails], in collaboration with European laboratories.
- 2000-2002** Postdoctoral researcher and member of the research team. Department of Cell and Molecular Biology, Biomedical Center, Uppsala, Sweden. Participation in Swedish Science Foundation (SSF) research program on “metabolism of mRNA”.

## RESEARCH INTERESTS

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1. *Deadenylases and their role in gene expression.*
  - a. *Biological significance of deadenylases.*
  - b. *Concerted and dynamic role of deadenylases and microRNAs in mRNA stability.*
  - c. *Role of deadenylases in cancer.*
  - d. *Regulators of deadenylase activity, focusing on poly(A)-specific ribonuclease*
2. *Deadenylation in circadian gene expression:*
  - a. *Deadenylases and microRNAs and the stability of circadian mRNAs.*
  - b. *Investigation for novel deadenylases in circadian rhythms.*
3. *Exosomes: isolation, characterization and role in lung cancer diagnosis*

## PUBLICATIONS

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- *PhD Thesis*

“Mode of action of biological modifiers and anticancer drugs on RNA metabolizing enzymes. Their role in cancer biology and the impact in diagnosis and therapy”.

Department of Biochemistry, Medical School, University of Athens. Athens, 1999.

Supervisor: Constantine E. Sekeris.
- *In peer-reviewed journals*

**Total number of publications: 30**

**I.F.: 97.267**

**Mean I.F.: 3.474**

**Citations: 281 (Scopus)**

**h-Index: 10**

- 1 Antonopoulos D, Tsilioni I, Balatsos NAA, Gourgoulidis KI, Theoharides TC. The mast cell - neurofibromatosis connection. *J Biol Regul Homeost Agents*. 2019; 33(3): 657-659. PMID: 31184097 (IF. 1.397)

- 2 Mousailidis GK, Lachanas VA, Vasdeki A, Alexopoulos EI, Kaditis AG, Petinaki E, Balatsos NAA, Bizakis JG, Skoulakis CE. Urine concentrations changes of cysteinyl leukotrienes in non-obese children with obstructive sleep apnea undergoing adenotonsillectomy. *Int J Pediatr Otorhinolaryngol*. 2018; 115: 149-152. doi: 10.1016/j.ijporl.2018.10.002. (IF 1.305)
- 3 Beta RAA, Balatsos NAA. Tales around the clock: Poly(A) tails in circadian gene expression. *Wiley Interdiscip Rev RNA*. 2018; e1484. doi: 10.1002/wrna.1484. (IF 5.844)
- 4 Jantsch MF, Quattrone A, O'Connell M, Helm M, Frye M, Macias-Gonzales M, Ohman M, Ameres S, Willems L, Fuks F, Oulas A, Vanacova S, Nielsen H, Bousquet-Antonelli C, Motorin Y, Roignant JY, **Balatsos N**, et al. Positioning Europe for the EPITRANSCRIPTOMICS challenge. *RNA Biol*. 2018; May 9: 1-3. doi: 10.1080/15476286.2018.1460996. (IF 5.217)
- 5 Chatzileontiadou DSM, Samiotaki M, Alexopoulou AN, Cotsiki M, Panayotou G, Stamatiadi M, Balatsos NAA, Leonidas DD, Kontou M. Proteomic Analysis of Human Angiogenin Interactions Reveals Cytoplasmic PCNA as a Putative Binding Partner. *J Proteome Res*. 2017; 16: 3606-3622. doi: 10.1021/acs.jproteome.7b00335. (IF 3.95)
- 6 Antonopoulos D, **Balatsos NAA**, Gourgoulisianis KI. Cancer's smart bombs: tumor-derived exosomes target lung epithelial cells triggering pre-metastatic niche formation. *J Thorac Dis*. 2017 Apr;9(4):969-972. doi: 10.21037/jtd.2017.03.129. (IF 1.804)
- 7 Chatzileontiadou DS, Tsirkone VG, Dossi K, Kassouni AG, Liggri PG, Kantsadi AL, Stravodimos GA, **Balatsos NA**, Skamnaki VT, Leonidas DD. "The ammonium sulfate inhibition of human angiogenin". *FEBS Lett*. 2016; 590: 3005-18. doi: 10.1002/1873-3468.12335. (IF 2.675)
- 8 Cuadrado I, Saura M, Castejón B, Martin AM, Herruzo I, **Balatsos N.A.A.**, Zamorano JL, Zaragoza C. "Preclinical models of atherosclerosis. The future of Hybrid PET/MR technology for the early detection of vulnerable plaque". *Expert Rev Mol Med*. 2016; 18:e6. (IF 3.865)
- 9 Delis C., Krokida A., Tomatsidou A., Tsikou D., Beta R.A., Tsioumpekou M., Moustaka J., Stravodimos G., Leonidas D.D., **Balatsos N.A.A.\***, Papadopoulou K.K. "AtHESPERIN: A Novel Regulator of Circadian Rhythms with Poly(A)-degrading Activity in Plants". *RNA Biol*. 2016;13: 68-82 (IF: 5.217).  
**\*corresponding author**
- 10 Chatzileontiadou D.S., Parmenopoulou V., Manta S., Kantsadi A.L., Kylindri P., Griniezaki M., Kontopoulou F., Telopoulou A., Prokova H., Panagopoulos D., Boix E., **Balatsos N.A.A.**, Komiotis D., Leonidas D.D. "Triazole double-headed ribonucleosides as inhibitors of eosinophil derived neurotoxin". *Bioorg Chem*. 2015; 63: 152-65. (IF: 3.929)
- 11 Maragozidis P., Papanastasi E., Scutelnic D., Totomi A., Kokkori I., Zarogiannis S.G., Kerenidi T., Gourgoulisianis K.I., **Balatsos N.A.A.\***. "Poly(A)-specific ribonuclease and Nocturnin in squamous cell lung cancer: prognostic value and impact on gene expression". *Mol Cancer*. 2015; 14: 187. (IF: 10.679)  
**\*corresponding author**
- 12 Tsaoussoglou M., Hatzinikolaou S., Baltatzis G.E., Lianou L., Maragozidis P., **Balatsos N.A.A.**, Chrousos G., Kaditis A.G. "Expression of leukotriene biosynthetic enzymes in tonsillar tissue of children with obstructive sleep apnea: a prospective nonrandomized study". *JAMA Otolaryngol Head Neck Surg*. 2014; 140(10): 944-50. (IF: 3.295)
- 13 Pavlopoulou A., Vlachakis D., **Balatsos N.A.A.**, Kossida S. "A comprehensive phylogenetic analysis of deadenylases". *Evol Bioinform Online*. 2013; 9:491-7. (IF: 1.877)

- 14 Vlachakis D., Pavlopoulou A., Tsiliki G, Komiotis D., Stathopoulos C., **Balatsos N.A.A.\***, Kossida S. “An integrated in silico approach to design specific inhibitors targeting human poly(a)-specific ribonuclease.” *PLoS One*. 2012;7(12): e51113. doi: 10.1371/journal.pone.0051113. Epub 2012 Dec 6. (IF: 2.776)  
\* **corresponding author.**
- 15 Parmenopoulou V., Chatzileontiadou D.S., Manta S., Bougiatioti S., Maragozidis P., Gkaragkouni D.N., Kaffesaki E., Kantsadi A.L., Skamnaki V.T., Zographos S.E., Zounpoulakis P., **Balatsos N.A.A.\***, Komiotis D., Leonidas D.D. “Triazole pyrimidine nucleosides as inhibitors of Ribonuclease A. Synthesis, biochemical, and structural evaluation.” *Bioorg Med Chem*. 2012; 20: 7184-93. (IF: 2.881)  
\* **corresponding author.**
- 16 **Balatsos N.A.A.\*** Maragozidis P., Anastasakis D., Stathopoulos C. “Modulation of poly(A)-specific ribonuclease activity: functional and clinical implications.” *Current Medicinal Chemistry*, 2012;19(28):4838-49. (IF: 3.469)  
\***corresponding author.**
- 17 Tsaoussoglou M., Lianou L. Maragozidis P., Hatzinikolaou S., Mavromati M., Orolagas N., Gartagani-Panaghiotopoulou P., Rassidakis G., **Balatsos N.A.A.**, Chrousos G. and Kaditis AG. Cysteinyl leukotriene receptors in tonsillar T and B lymphocytes from children with obstructive sleep apnea. *Sleep Medicine*, in press (IF: 3.395)
- 18 Maragozidis P., Karangeli M., Labrou M., Salataj E., Pournaras S., Matsouka P., Gourgoulianis K.I. and **Balatsos N.A.A.\*** «Alterations of deadenylase expression in acute leukemias: evidence for poly(A)-specific ribonuclease as potential biomarker». *Acta Haematologica*, 2012; 128: 39-46 (DOI: 10.1159/000337418) (IF: 1.307)  
\***corresponding author.**
- 19 **Balatsos N.A.A.\*** Vlachakis D., Chatzigeorgiou V., Manta S., Komiotis D., Vlassi M. and Stathopoulos C. «Kinetic and in silico analysis of the slow-binding inhibition of Poly(A)-Specific Ribonuclease (PARN) by novel nucleoside analogues». *Biochimie*, 2012; 94(1): 214-21. Epub 2011 Oct 24. (IF: 3.188)  
\***corresponding author.**
- 20 **Balatsos N.A.A.**, Vlachakis D., Maragozidis P., Manta S., Anastasakis D., Kyritsis A., Vlassi M, Komiotis D. and Stathopoulos C. “Competitive inhibition of human poly(A)-specific ribonuclease (PARN) by synthetic fluoro-pyranosyl nucleosides”. *Biochemistry*, 2009; 48: 6044. (IF: 3.015)
- 21 **Balatsos, N.A.A.**, Anastasakis, D. and Stathopoulos, C. Inhibition of human poly(A)-specific ribonuclease (PARN) by purine nucleotides: kinetic analysis. *J. Enzyme Inhib. Med. Chem*. 2009; 24: 516. (IF: 2.332)
- 22 Nilsson, P., Henriksson, N., Niedzwiecka A., **Balatsos, N.A.A.**, Kokkoris K, Ericsson J. and Virtanen, A. A multifunctional RNA recognition motif in poly(A)-specific ribonuclease with cap and poly(A) binding properties. *J. Biol. Chem*. 2007; 282: 32902 (IF: 4.573)
- 23 **Balatsos N.A.A.**, Nilsson P., Mazza C., Cusack S. and Virtanen A.: “Inhibition of mRNA deadenylation by the nuclear cap binding complex (CBC)”. *J. Biol. Chem*. 2006; 281: 4517. (IF: 2.383) (IF: 4.573)
- 24 **Swevers L., Morou E. Balatsos N.A.A., Iatrou C. and Georgoussi Z. "Functional expression of mammalian opioid receptors in insect cells and high throughput screening platforms for receptor ligand mimetics". *Cell Mol Life Sci*. 2005; 62: 919-30. (IF: 5.808)**
- 25 Swevers L., Farrell P.J., Kravariti L., Xenou-Kokoletsi M., Sdralia N., Lioupis A., Morou E, **Balatsos N.A.A.**, Douris V, Georgoussi Z., Mazomenos V. and Iatrou K. “Transformed insect cells as high throughput screening tools for the discovery of new bioactive compounds”. *Comm. Agric. Appl. Biol Sciences*. 2003; 62: 333-341.

- 26 Balatsos N.A.A., Lalas G., Havredaki M. and Tsiapalis C.M.: “Drug action on poly(A) polymerase activity and isoforms during U937 cell apoptosis”. *J Exp Clin Cancer Res.* 2001; 20: 63-69. (IF: 4.429)
- 27 Balatsos N.A.A., Havredaki M. and Tsiapalis C.M.: “Early 5-Fluorouracil-induced changes of poly(A) polymerase in HeLa and WISH cells”. *Int J Biol Markers.* 2000; 15: 294-9. (IF: 1.371)
- 28 Samiotaki M, Balatsos N.A.A., Curtis N. and Tsiapalis C. M.: “Assignment of the 100 kDa subunit of cleavage and polyadenylation specificity factor (CPSF2) to human chromosome 14q31.3 by radiation hybrid mapping”. *Cytogenet. Cell Genetics.* 2000; 90: 328-9. (IF: 1.561)
- 29 Samiotaki M, Balatsos N.A.A., Curtis N. and Tsiapalis C. M.: “Assignment of the 160 kDa subunit of cleavage and polyadenylation specificity factor (CPSF1) to human chromosome 8q24.23 by radiation hybrid mapping”. *Cytogenet. Cell Genetics.* 2000; 90: 234-5. (IF: 1.561)
- 30 Balatsos N.A.A., Havredaki M. and Tsiapalis C.M.: “Anticancer drug action on poly(A) polymerase activity and isoforms during HeLa and WISH cell apoptosis”. *Int. J. Biol. Markers.* 2000; 15: 171-8. (IF: 1.371)

- *In Book chapters*

Giannouli S., Maragozidis P., Gougroulianis K.I. and Balatsos N.A.A.\* (2012). Micro-RNAs: from regulators of gene expression to cancer biomarkers. In: Cancer Biomarkers. Science Publishers, CRC Press, Taylor and Francis Group. \*corresponding author.

Balatsos N.A.A. and Rogakou E.P. (2004). Chromatin involvement in DNA double-strand break repair pathways. In: DNA Damage Recognition. (2004) Siede W, New York, Marcel Dekker Inc.

## CONFERENCES

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70 Reports and posters in national and international conferences.