

Curriculum Vitae

Roumen Pankov, Ph.D.

June, 2009

Date of birth: December 16, 1955

Citizenship: Bulgaria

Contact information:

Department of Cytology, Histology and Embryology, Faculty of Biology, Sofia University
“St. Kliment Ohridski”

8 Dragan Tzankov str., 1164 Sofia, Bulgaria

Tel.: (+359)-2-8167-274, E-mail: rpankov@biofac.uni-sofia.bg

• Education and scientific degrees

- 1975-1980** M.Sc., Biology, Sofia University “St. Kliment Ohridski”
- 1980-1982** Post-graduate training in Cell Biology, Institute of Molecular Biology, Bulgarian Academy of Sciences
- 1982-1986** Ph.D., Molecular and Cell Biology, Institute of Molecular Biology, Bulgarian Academy of Sciences. “Vertebrate liver cytokeratins – changes in the course of evolution” (Scientific Advisor- Prof. George Markov)
- 1986-1988** Post doctoral training, Cancer Research Center, Quebec, Canada
- 1990-1991** Post doctoral training, The Weizmann Institute of Sciences, Rehovot, Israel
- 1992-1993** Post doctoral training, La Jolla Cancer Research Institute (currently The Burnham Institute), La Jolla, California, USA
- 2005** DSc, “Novel structural and signaling functions of integrin $\alpha 5\beta 1$ ”, SSC Molecular Biology, Biophysics and Biochemistry
-

• Employment

- 1986-1988** Research Associate, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
- 1988-1994** Assistant Professor at the Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
- 1994-1997** Associate Professor, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
- 1997-2001** Visiting Scientist at NIDCR, National Institutes of Health, Bethesda, Maryland, USA
- 2001-2004** Staff Scientist at NIDCR, National Institutes of Health, Bethesda, Maryland, USA

- 2004-2006** Associate Professor, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
- 2006-** Professor, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
- 2006-** Guest Researcher, NIDCR, National Institutes of Health, Bethesda, Maryland, USA
- 2009-** Head, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University, Sofia, Bulgaria
-

• Training and Expertise

- 1986-1987** Molecular composition of the kinetochore in Prof. Ronald Hancock's laboratory at the Cancer Research Center, Quebec, Canada
- 1990** Regulation of adherence junction expression in Prof. Avri Ben-Ze'ev's laboratory at the Weizmann Institute of Sciences, Rehovot, Israel
- 1992-1993** Transcriptional regulation of human keratin 18 gene in Prof. Robert Oshima's laboratory at the La Jolla Cancer Research Foundation, (currently The Burnham Institute) La Jolla, CA, U.S.A.
- 1994-1995** Focal adhesion formation after vinculin gene disruption in Prof. Avri Ben-Ze'ev's laboratory at the Weizmann Institute of Sciences, Rehovot, Israel
- 1995-1996** Involvement of simple epithelial keratins in the establishment of the tumorigenic phenotype in Prof. Avri Ben-Ze'ev's laboratory at the Weizmann Institute of Sciences, Rehovot, Israel
- 1997-2004** Integrin function in Craniofacial Developmental Biology and Regeneration Branch, Branch Chief Dr. Kenneth M. Yamada, NIDCR, NIH, U.S.A.
-

• Awards and Fellowships

- 1986-1988** Cancer Research Center Fellowship (L'Hotel Dieu de Quebec, Canada)
- 1990** Federation of European Biochemical Societies Research Fellowship (Israel)
- 1994-1995** Yamagiwa-Yoshida Memorial International Cancer Study Grant (YY)
-

• Teaching and Mentoring

- 1988-1994** Instructed laboratory courses: Cell Biology (undergraduate biology students)
- 1994-1997** Lectures: Cytology (undergraduate ecology and biotechnology students), Cell Biology (undergraduate biology and molecular biology students)
- 1995-1997** Developed curricula and gave lectures for courses: Mammalian Cell Culture (graduate cell and molecular biology students), Cytoskeleton and Extracellular Matrix (graduate cell and molecular biology students).
- 2004-present** Lectures: Cytology (undergraduate ecology and biotechnology students), Cell Biology (undergraduate biology and molecular biology students), Mammalian Cell Culture (graduate cell and molecular biology students), Cytoskeleton and Extracellular Matrix (graduate cell and molecular biology students).

- **Current National and International Projects**

Biotechnology and Public Health Transnational Network (HealthBiotech), Leonardo da Vinci BG/04/B/F/NT-166032 – partner (2004 - 2007)

Structure and lateral organization of model and native membranes - National Science Fund #1404/04 - partner (2004 - 2007)

Combined system for observation and fluorescent registration of cells, liposomes and model membranes for the needs of cell and molecular biology - National Science Fund # YHA -42 - partner (2005-2006)

Innovative e-Learning in Reparative Medicine (NOVAe-MED), Leonardo da Vinci BG/05/B/F/PP-166046 - partner (2005 - 2007)

Improving the Capacity for Research and Development of Bulgarian Scientific Organizations and SMEs in Biothechnology and Genomics for Health (IMPACT-BG) - National Science Fund # 901-401 - coordinator (2005 - 2007)

Transmembrane Signal Transduction in Three Dimensional Matrix – National Science Fund # BY-B-1/05 - leader (2005 - 2008)

Cell Adhesion Contacts - Potential Sensor Element for Assessment of Surface Biocompatibility - National Science Fund # DO1-1261/07- leader (2008 - 2011)

Establishment of human embryonic stem cell lines and studies of their ability to differentiate *in vitro* into germ cells - National Science Fund # DO 02-180/08 - leader (2008 - 2011)

- **Research**

Area of research: Molecular Cell Biology (Cell signaling, Extracellular matrix, Stem cells, Live Cell Biosensors)

Publications: Scientific papers in peered reviewed journals including *Science*, *Nature review Molecular Cell Biology*, *The Journal of Cell Science*, *The Journal of Cell Biology*, *Journal of Biological Chemistry*, *Molecular Cell Biology*, *PNAS*, *Current Opinion in Cell Biology*, etc. (see attached list)

Impact factor – more than 240; Citations - more than 2500

- **Scientific Review Experience**

Reviewer for *Science*, *The Journal of Cell Biology*, *Journal of Cell Science*, and *Cell Biology International*

- **Memberships**

International Union Against Cancer (UICC)
Bulgarian Biochemical and Biophysical Society (BBBS)

- **Appointments**

Head, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University “St. Kliment Ohridski”

Head, Laboratory of Cell Signaling, Department of Cytology, Histology and Embryology, Biology Faculty, Sofia University “St. Kliment Ohridski”

Member of the BMBS domain committee, COST program, EU

Member of the Specialized Scientific Council in Molecular Biology, Biophysics and Biochemistry, Bulgarian High Attestation Commission

Member of the Scientific Council, Biology Faculty, Sofia University “St. Kliment Ohridski”

Member of the Scientific Council, Institute of Molecular Biology, Bulgarian Academy of Sciences

Member of the Scientific-Expert Council, Medical University

Member of the Faculty Council, Biology Faculty, Sofia University “St. Kliment Ohridski”

Member of the Editorial Board, Biothechnology & Biotechnological Equipment, Diagnosis Press

Member of the Executive Council, National Science Fund

- **Selected Publications**

1. Green JA, Berrier AL, **Pankov R**, Yamada KM., β_1 integrin cytoplasmic domain residues selectively modulate fibronectin matrix assembly and cell spreading through talin and AKT-1, *J Biol Chem.* 2009 Mar 20;284(12):8148-59.
2. **Pankov R** and Momchilova A., Fluorescent labeling techniques for investigation of fibronectin fibrillogenesis, *Methods Mol Biol.* 2009;522:261-74.
3. Damianova R, Stefanova N, Cukierman E and Momchilova A, **Pankov R**, Three-dimensional matrix induces sustained activation of ERK1/2 via Src/Ras/Raf signaling pathway, *Cell Biol International*, 2008, 32:229-34
4. Valtcheva-Sarker R, Stephanova E, Hristova K, Altankov G, Momchilova A, **Pankov R.**, Halothane affects focal adhesion proteins in the A 549 cells, *Mol Cell Biochem.* 2007 Jan;295(1-2):59-64.
5. Yukinori Endo, Sharona-Even Ram, **Roumen Pankov**, Kazue Matsumoto, and Kenneth M. Yamada, Inhibition of Rho GTPases by RNA Interfere, *Methods Enzymol.*, 406:345-61. 2006

6. **Roumen Pankov**, Tania Markovska, Rusina Hazarosova, Peter Antonov, Lidia Ivanova, Albena Momchilova, Cholesterol distribution in plasma membranes of $\beta 1$ integrin-expressing and $\beta 1$ integrin-deficient fibroblasts, *Archives of Biochem. Biophys.* 442: 160-168, 2005
7. **Roumen Pankov**, Yukinori Endo, Sharona Even-Ram, Masaru Araki, Katherine Clark Edna Cukierman, Kazue Matsumoto, and Kenneth M. Yamada, A Rac Switch Regulates Random versus Directionally Persistent Cell Migration, *J Cell Biol.* 170: 793-802, 2005
8. **Roumen Pankov** and Katherine Clark, Integrins in Extracellular Matrix Assembly in "Integrins and Development" Edd. Erik Danen, Eureka.com. (<http://www.Eureka.com>), 2005
9. Clark K, **Pankov, R**, Travis MA, Askari JA, Mould AP, Craig SE, Newham P, Yamada KM, Humphries MJ. A specific $\alpha 5\beta 1$ -integrin conformation promotes directional integrin translocation and fibronectin matrix formation. *J Cell Sci.* Jan 15;118(Pt 2):291-300, 2005
10. **Pankov, R.**, Cukierman, E., Clark, K., Matsumoto, K., Hahn, C., LaFlamme, S. E., Poulin, B., and Yamada, K. M. Specific $\beta 1$ integrin site selectively regulates Akt/PKB signaling via local activation of PP2A. *J. Biol. Chem.* 278: 18671-18681, 2003.
11. Yamada, K. M., **Pankov, R.**, Cukierman, E. Dimensions and dynamics in integrin function. *Braz J Med Biol Res.* 36: 959-66, 2003.
12. **Pankov R.** A guide for the ECM maze. *J. Cell Sci.* 116: 947-948, 2003.
13. Tran H, **Pankov R**, Tran SD, Hampton B, Burgess WH, Yamada KM. Integrin clustering induces kinectin accumulation. *J. Cell Sci.* 115: 2031-2040, 2002.
14. **Pankov R**, Yamada KM. Fibronectin at a glance. *J. Cell Sci.* 115: 3861-3863, 2002.
15. Cukierman, E., **Pankov, R.**, and Yamada, K. M. Cell interactions with 3D matrices. *Curr. Opin. Cell Biol.* 14: 633-640, 2002.
16. Geiger B, Bershadsky A, **Pankov R**, Yamada KM. Transmembrane crosstalk between the extracellular matrix--cytoskeleton crosstalk. *Nat. Rev. Mol. Cell Biol.* 2:793, 2001.
17. Cukierman, E., **Pankov, R.**, Stevens, D. R., and Yamada, K. M. Taking cell-matrix adhesions to the third dimension. *Science* 294: 1708-1712, 2001.
18. **Pankov, R.**, Cukierman, E., Katz, B-Z., Matsumoto, K., Lin, D.C., Lin, S., Hahn, C., and Yamada, K.M. Integrin dynamics and matrix assembly: tensin-dependent translocation of $\alpha 5\beta 1$ integrins promotes early fibronectin fibrillogenesis. *J. Cell Biol.* 148: 1075-1090, 2000.
19. Gu, J., Tamura, M., **Pankov, R.**, Danen, E.H.J., Takino, T., and Yamada, K.M. Shc and FAK Differentially Regulate Cell Motility and Directionality Modulated by PTEN. *J. Cell Biol.* 146(2): 389-404, 1999.
20. Momchilova, A., Markovska, T., and **Pankov, R.**, Phospholipid dependence of membrane-bound phospholipase A2 in ras-transformed NIH 3T3 fibroblasts. *Biochimie* 80: 1055-1062, 1998.

21. **Pankov, R.**, Simcha, I., Zoller, M., Oshima, R., and Ben-Ze'ev, A. Contrasting effects of K8 and K18 on stabilizing K19 expression, cell motility and tumorigenicity in Bsp73 Adenocarcinoma. *J. Cell Sci.* 110: 965-974, 1997.
22. Volberg, T., Geiger, B., Kam, Z., **Pankov, R.**, Simcha, I., Sabany, H., Coll, J-L., Adamson, E., and Ben-Ze'ev, A. Focal adhesion formation by F9 embryonal carcinoma cells after vinculin gene disruption. *J. Cell Sci.* 108: 2253-2260, 1995.
23. **Pankov, R.**, Neznanov, N., Umezawa, A., and Oshima, R. AP-1, ETS and transcriptional silencers regulate the retinoic-acid dependent induction of keratin 18 in embryonic cells. *Mol. Cell. Biol.* 14: 7748-7757, 1994.
24. **Pankov, R.**, Umezawa, A., Maki, R., Der, Ch., Hauser, C., and Oshima, R. Oncogene activation of human keratin 18 transcription via the Ras signal transduction pathway, *Proc. Natl. Acad. Sci. USA*, 91: 873-877, 1994.
25. Koshlukova, S., Markovska, T., **Pankov, R.G.**, Momchilova, A., and Koumanov, K. Alterations in microsomal and plasma membranes during liver regeneration. *Biochimie* 74: 981-987, 1992.
26. Gluck, U., Fernandez, J. L. R., **Pankov, R.**, and Ben-Ze'ev, A. Regulation of adherens junction expression in growth-activated 3T3 cells and regenerating liver. *Exp. Cell Res.* 202: 477-486, 1992.
27. Momchilova, A.B., Markovska, T.T., Koshlukova, S.E., Koumanov, K.S., and **Pankov, R.G.** Phospholipid modifications influence acyl-CoA: 1-acyl-glicero-3-phosphocholine O-acyltransferase in rat liver plasma membranes. *Biochem. Cell Biol.* 69: 643-648, 1991.
28. Hancock, R., Charron, M., Lambert, H., Lemieux, M., **Pankov, R.**, and Pepin, N., Topoisomerase-II as a target of antitumor agents. *Pharmacol. Ther. S.* 119-137, 1990.
29. **Pankov, R.**, Lemieux, M., and Hancock, R. An antigen localized in the kinetochore region in metaphase and on polar microtubule ends in the midbody region in anaphase, characterized using a monoclonal antibody. *Chromosoma* 99: 95-101, 1990.
30. Lambert, H., **Pankov, R.**, Gauthier, J., and Hancock, R. Electroporation-mediated uptake of proteins into mammalian cells. *Biochem. Cell Biol.* 68: 729-734, 1990.

• Selected Meetings and Symposia

1. **Pankov, R.**, "Cell adhesions and signaling - Insight from the third dimension" NATO Advanced Research Workshop Nanoengineered Materials for Regenerative Medicine, September 21-24, Varna, 2007
2. **Pankov, R.**, Even-Ram, Sh., Cukierman, E., Matsumoto, K., Clark, K., and Yamada, K. M. Adhesion Contacts and Fibronectin Assembly. *Fibronectin, Integrins, and Related Molecules, Gordon Research Conference, Ventura, CA*, 2003
3. Yamada, K. M., **Pankov, R.**, Cukierman, E., Sakai, T., Larsen, M. Dimensions in integrin complex formation and signaling. *Fibronectin, Integrins, and Related Molecules, Gordon Research Conference, Ventura, CA*, 2003.

4. Yamada, K. M., Katz, B.-Z., Miyamoto, S., **Pankov, R.**, Cukierman, E., Larsen, M., Sakai, T. Dimensions and Specificity in Integrin-mediated Signaling. *National Health Research Institute (NHRI) of Taiwan symposium on "Signal Transduction" Taipei, Taiwan, 2003*
5. Yamada, K. M., **Pankov, R.**, Cukierman, E., Larsen, M., Sakai, T. Dimensions and Dynamics in Integrin Function and Tissue Remodeling. *Meeting in Seoul, Korea, 2003.*
6. Yamada, K. M., **Pankov, R.**, Cukierman, E. Dimensions in Adhesive Signaling. *Cell migration and invasion meeting, Keystone Symposia, Keystone, CO, 2003.*
7. Yamada, K. M., **Pankov, R.**, Tran, H., and Cukierman, E. Dimensions and dynamics in integrin function. *ECM conference, Brazil, 2002.*
8. Cukierman, E., **Pankov, R.**, and Yamada, K. M. The three dimensional matrix adhesion. *3rd Federation of Israel Societies for Experimental Biology Congress. Eilat, Israel, 2002.*
9. **Pankov, R.**, Cukierman, E., Hahn, C., Matsumoto, K., LaFlamme, S. E., and Yamada, K. M. Integrin-mediated cell survival and matrix assembly. *Fibronectin, Integrins, and Related Molecules, Gordon Research Conference, Ventura, CA, 2001.*
10. Yamada, K. M., **Pankov, R.**, and Cukierman, E. Remodeling of matrices in adhesive contact formation. *AACR 92nd annual meeting, New Orleans, LA, 2001.*
11. Yamada, K. M., Tamura, M., Cukierman, E., and **Pankov, R.** Integrin complexes in matrix interactions, migration, and signaling. *Cell Migration and Invasion, Keystone Symposia, Tahoe City, CA, 2001.*
12. **Pankov, R.**, Cukierman, E., Katz, B.-Z., Matsumoto, K., Lin, D.C., Lin, S., Hahn, C., and Yamada, K.M. Integrin dynamics and matrix assembly: Actin- and tensin-induced translocation of alpha(5)beta(1) integrins drives early fibronectin fibrillogenesis. *13th ASCB annual meeting Washington D.C., 1999.*
13. **Pankov, R.**, Lemieux, M. and R. Hancock, An antigen localized at stable plus ends during mitosis, at kinetochore corona in metaphase and at the midbody in anaphase, *Thirtieth Annual Meeting of The American Society for Cell Biology, San Diego, California, 9-13 December 1990.*
14. **Pankov, R.** and Markov, G., Vertebrate liver cytokeratins – changes in the course of evolution, *Canadian Cell Biology Society Annual Workshop, 3-4 April, 1987*
15. **Pankov, R.** and Hancock, R., Polypeptides of the kinetochore of Chinese hamster ovary cells, *Twenty-seventh Annual Meeting of the American Society for Cell Biology, St. Louis, Missouri, U.S.A., 16-20 November, St. 1987*