

ПРИМЉЕНО: 23. 01. 2018.			
Орг. јед.	Број	Прилог	Бројакост
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Na osnovu članova 65 i 77 Zakona o visokom obrazovanju, Pravilnika o uslovima i načinu angažovanja gostujućeg profesora na Univerzitetu u Beogradu i člana 129 Statuta Biološkog fakulteta, Nastavno-naučnom veću Fakulteta podnosimo sledeći

REFERAT

BIOGRAFIJA

Dr Vesna Rapić Otrin je 1978. godine završila osnovne studije na studijskom programu Molekularna biologija i fiziologija na Odseku za biološke nauke, Prirodno-matematičkog fakulteta Univerziteta u Beogradu i potom magistrirala 1983. godine na smeru Biohemija i molekularna biologija. Doktorski istraživački rad u oblasti farmakogenetike i mutageneze obavljala je u Institutu Vinča i laboratoriji Dr. Daniel Nebert-a u Nacionalnim institutima za zdravlje u Sjedinjenim američkim državama (*National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD, USA*), a doktorsku disertaciju je odbranila 1991. na Odseku za biološke nauke, Prirodno-matematičkog fakulteta Univerziteta u Beogradu. Godine 1992. otišla je na postdoktorske studije u laboratoriju Dr. Arthur S. Levin-a u Nacionalnim institutima za zdravlje u Sjedinjenim američkim državama (*Section on Viruses and Cellular Biology i Section on DNA Replication, Repair and Mutagenesis, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD, USA*), gde je 1998. godine dobila poziciju Senior Staff Fellow. Dr Rapić Otrin je od 1999. godine bila angažovana na Medicinskom fakultetu Univerziteta u Pittsburgu, SAD (*Department of Molecular Genetics and Biochemistry i Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA*). Od oktobra 2013. ima status *Adjunct Assistant Professor* na istom fakultetu (*Department of Microbiology and Molecular Genetics, University of Pittsburgh*) koji se produžava svake godine ugovorom za narednih 12 meseci. U periodu od 01.10.2013. do 31.05.2016. dr Rapić Otrin je bila angažovana na AREA projektu na Poljoprivrednom fakultetu Univerziteta u Beogradu. Od 2013. godine kada je prvi put izabrana u zvanje Gostujući professor na Univerzitetu u Beogradu, predaje na doktorskim programima Biološkog i Poljoprivrednog fakulteta Univerziteta u Beogradu.

NAUČNO-ISTRAŽIVAČKA AKTIVNOST

U svom naučno-istraživačkom radu dr Vesna Rapić Otrin je od samog početka bila skoncentrisana na molekularne mehanizme reparacije oštećenja u molekulima DNK i to u kontekstu hromatina. Cilj njenih istraživanja bio je da se utvrdi na koji način ćelijska mašinerija za reparaciju pristupa oštećenjima u DNK i na koji način dinamična struktura hromatina omogućuje efikasnu reparaciju. Dr Rapić Otrin je posebno izučavala značaj

ubikvitinacije nukleozomskih histona za interakciju proteinskog kompleksa odgovornog za nukleotidnu ekscizionu reparaciju DNK u okviru hromatinske strukture. Poseban doprinos dr Rapić Otrin sastoji se u rasvetljavanju strukture i funkcije proteinskog faktora UV-DDB i kompleksa koje ovaj protein formira. Najznačajniji rezultati koji su obeležili naučnu karijeru dr Rapić Otrin su dokazi da UV zračenje indukuje degradaciju DDB2, da oboljenje *Xeroderma pigmentosum* nastaje kao posledica mutacija u genu za DDB2, kao i da ovaj protein učestvuje u reparaciji DNK u okviru hromatina putem monoubikvitinacije histona H2A. Najnoviji eksperimenti dr Rapić Otrin i saradnika uključuju biohemijske manipulacije pojedinačnih nukleozoma i otkrivaju tačnu ulogu ubikvitinacije nukleozomskih histona u inicijaciji nukleotidnog ekscizionog repera u realnom vremenu.

Svoje rezultate dr Vesna Rapić Otrin publikovala je u najkvalitetnijim naučnim časopisima u oblasti kojom se bavi, uključujući *Proceedings of the National Academy of Sciences of the USA* (4 publikacije), *Human Molecular Genetics*, *Nucleic Acids Research*, *EMBO Journal*, *Molecular and Cellular Biology* i druge. O kvalitetu njenih rezultata i naučnom impaktu govori impozantan broj citata (1704 citata, h-index=17, prema *Google Scholar Search*), kao i činjenice da dr Rapić Otrin često učestvuje na međunarodnim naučnim skupovima kao pozvani predavač, predsedavajući sekcije ili član naučnog odbora, da je član uređivačkog odbora časopisa *DNA Repair* koji je usko specijalizovan za oblast reparacije DNK, da je dobila nekoliko značajnih nagrada za svoj naučno-istraživački rad i da redovno recenzira naučne radove za najkvalitetnije naučne časopise u oblasti kojom se bavi (*Nucleic Acids Research*, *Journal of Investigative Dermatology*, *Carcinogenesis*, *Molecular and Cellular Biology*, *International Journal of Cancer*, *Mutation Research*, *PLoS One*).

NAGRADE ZA NAUČNO-ISTRAŽIVAČKI RAD

Dr Rapić Otrin je dobitnik više nagrada za svoj naučni rad:

- Science Research Council of Serbia Pre-Doctoral Fellowship Award, 1986 (Srbija, Jugoslavija)
- NIH International Scholar Award, 1987-1988 (USA)
- NIH Intramural Research Training Award, 1992-1997 (USA)
- Pitt CMRF Award - Competitive Medical Research Fund, 2003 (USA)

PUBLIKOVANI RADOVI

Radovi kategorije M21a

Ghodke H, Wang H, Hsieh CL, Woldemeskel S, Watkins SC, **Rapić-Otrin V**, Van Houten B. Single-molecule analysis reveals human UV-damaged DNA-binding protein (UV-DDB) dimerizes on DNA via multiple kinetic intermediates. *Proc Natl Acad Sci USA* (2014) 111, E1862-E1871. doi: 10.1073/pnas.1323856111. **IF=9,674**

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- Guerrero-Santoro, J., Kapetanaki, M. G., Hsieh, C. L., Gorbachinsky, I., Levine, A. S., and **Rapić-Otrin, V.** The cullin 4B-based UV-damaged DNA-binding protein ligase binds to UV-damaged chromatin and ubiquitinates histone H2A. *Cancer Res* (2008) 68, 5014-5022. doi: 10.1158/0008-5472.CAN-07-6162. **IF=7,514**
- Kapetanaki, M., Guerrero-Santoro, J., Bisi, D.S., Hsieh, C.L., **Rapić-Otrin, V***, and Levine, A.S. The DDB1-CUL4A^{DDB2} Ubiquitin Ligase is Deficient in Xeroderma Pigmentosum Group E and Targets Histone H2A at UV-damaged DNA sites. *Proc Natl Acad Sci USA* (2006) 103, 588-2593. (*corresponding author) **IF=9,643**
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- Rapić Otrin, V.**, Kuraoka, I., Nardo, T., McLenigan, M., Eker, A., Stefanini, M., Levine, A.S., and Wood, R.D. Relationship of the xeroderma pigmentosum group E DNA repair defect to the chromatin and DNA binding proteins UV-DDB and RPA. *Mol Cell Biol* (1998) 18, 3182-3190. **IF=9,571**
- Petersen, D.D, Gonzalez, F.J., **Rapic, V.**, Kozak, C.A., Lee, J-Y., Jones, J.E., and Nebert, D.W. Marked increases in hepatic NAD(P)H: oxidoreductase gene transcription and mRNA levels correlated with a mouse chromosome 7 deletion. *Proc Natl Acad Sci USA* (1989) 86, 6699-6703. **IF=10,032**

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Pullara F, Guerrero-Santoro J, Calero M, Zhang Q, Peng Y, Spähr H, Kornberg GL, Cusimano A, Stevenson HP, Santamaria-Suarez H, Reynolds SL, Brown IS, Monga SP, Houten BV, **Rapić-Otrin V**, Calero G, Levine AS. A general path for large-scale solubilization of cellular proteins: From membrane receptors to multiprotein complexes. *Protein Expr Purif* (2013) 87, 111-119. doi: 10.1016/j.pep.2012.10.007. **IF=1,508**

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Guerrero-Santoro J, Levine AS, **Rapić-Otrin V.** Co-localization of DNA repair proteins with UV-induced DNA damage in locally irradiated cells. *Methods Mol Biol* (2011) 682,149-61. doi: 10.1007/978-1-60327-409-8_12.

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Predavanja po pozivu

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The First EU-US Workshop on "Dynamics of DNA repair enzymes involved in nucleotide excision repair and inter-strand crosslink repair: from molecules to man", Smolenice Castle, Slovakia, May 23-27, 2010. Title: DDB1-CUL4B^{DDB2} E3 ligase-dependent ubiquitination of the core histones destabilizes mononucleosomes containing UV-damaged DNA.

7th Annual Pittsburgh Area Ubiquitin-Proteasome Meeting, Pittsburgh, PA, May 6th, 2010. Title: DDB1-CUL4B^{DDB2} E3 ligase targets nucleosome-deposit histones H2A and H3 for ubiquitination.

The Pittsburgh Chromatin Club Minisymposium, Pittsburgh, PA, April 30, 2010. Title: UV-damaged DNA-dependent Ubiquitination of the Core Histones Destabilizes Mononucleosome.

The Pittsburgh Chromatin Club Minisymposium, Pittsburgh, PA, May 1, 2009. Title: Nucleotide excision repair in non-transcribed DNA is initiated by ubiquitinated histones.

The 6th 3R (Replication, Recombination, Repair) Symposium, Yamaha Resort Tsumagoi in Kakegawa, Shizuoka, Japan. October 27-30, 2008. Title: UV-DDB forms two separate E3 ligases and ubiquitinates histone H2A.

The IV International Conference: Ubiquitin, Ubiquitin-Like Proteins, and Cancer. M.D. Anderson Cancer Center, Houston, Texas, February 7-9, 2008. Title: The cullin 4B-based UV-damaged DNA-binding protein ligase binds to UV-damaged chromatin and ubiquitinates histone H2A

4th Annual Pittsburgh Area Ubiquitin-Proteasome Meeting, Pittsburgh, PA, July 13, 2007. Title: CUL4B-based UV-DDB E3 ligase binds to UV-damaged chromatin and ubiquitinates histone H2A.

ZOMES-IV, Yale University, New Haven, June 18-21, 2006. Title: The DDB1-CUL4A^{DDB2} Ubiquitin Ligase Targets Histone H2A at UV-damaged DNA Sites.

DNA Repair from Molecular Mechanism to Human Disease, Noordwijkerhout, The Nederland, April 2-7, 2006. Title: The DDB1-CUL4A^{DDB2} Ubiquitin Ligase Targets Histone H2A at UV-damaged DNA sites.

DNA Repair Interest Group Videoconference, NIH Bethesda, MD, January 17, 2006. Title: The UV-DDB-Based Ubiquitin Ligase and Nucleotide Excision Repair.

The Pittsburgh Chromatin Club Minisymposium, Pittsburgh, PA, December 9, 2005. Title: XP-E Phenotype: Monoubiquitination of Histone H2A and Cancer.

9th International Conference on Environmental Mutagenesis, San Francisco, CA, September 8, 2005. Title: The UV-DDB-Based Ubiquitin Ligase and Nucleotide Excision Repair.

2nd Annual Pittsburgh Area Ubiquitin-Proteasome Meeting, April 22, 2005. Title: UV-DDB based E3 ligase and nucleotide excision repair.

The Pittsburgh Chromatin Club Minisymposium, Pittsburgh, PA, April 25, 2003. Title: Is UV-DDB, as a global NER initiator, important for NER in a chromatin context?

Apstrakti saopštenja publikovani u časopisima sa SCI liste

Ghodke, H., Wang, H., Hsieh, C.H., Gibson G., Watkins, S., **Rapić-Otrin, V.**, Levine, S.L., and Van Houten, B. WT UV-DDB Performs a 3D Search on DNA whereas the XP-E Mutant (K244E DDB2) Mutant Slides. *Biophysical Journal* (2013) 104 (2), 77a.

Van Houten, B., Ghodke, H., Peng, Y., Wang, H., Watkins, S., **Rapić-Otrin, V.**, Hughes, C.D. and Kad, N. M. Watching One Molecule at the Time. *Environmental and Mol Mutagenesis* (2012) 53, Supplement 1, S24. (*EMS 43rd Annual Meeting*, Bellevue, WA, September 8-12, 2012)

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- Guerrero-Santoro, J., Kapetanaki, M., Hsieh, C. L., Gorbachinsky, I., Levine, A. S. and **Rapić-Otrin, V.** Two DDB1-CUL4^{DDB2} E3 ligases are implicated in DNA damage recognition. *18th Annual UPCI Scientific Meeting*, Johnstown, PA, June 22-23, 2006.
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ANGAŽOVANJE U NASTAVI

Pored bogate internacionalne naučne karijere, dr Vesna Rapić Otrin je posvetila veliku pažnju i pedagoškom radu. U doktorski program na Univerzitetu u Pitsburgu uključena je više godina kao predavač na predmetu *DNA Repair: Biochemistry to Human Disease*. Pored toga, ona već dugi niz godina održava radionice u okviru predmeta *Cell Structure, Metabolism and Nutrition, Fuel Metabolism* i *Human Genetics* na Medicinskom fakultetu Univerziteta u Pitsburgu. U individualnom radu sa studentima Dr Rapić Otrin se dokazala kao mentor većeg broja uspešnih diplomaca, doktoranata i postdoktoranata na Medicinskom fakultetu Univerziteta u Pitsburgu. Na Univerzitetu u Beogradu – Biološkom fakultetu dr Rapić Otrin aktivno učestvuje u realizaciji doktorskog programa Molekularna biologija od samog osnivanja ovog programa 2006. godine, a formalno od 2013. godine kada je prvi put izabrana u zvanje Gostujući profesor na našem univerzitetu. Imajući u vidu teorijski i biomedicinski značaj oblasti reparacije oštećenja u molekulima DNK, kao i činjenicu da istraživanja u ovoj oblasti u našoj zemlji daleko zaostaju za tokovima u svetu, posebno kada se radi o reparacionim mehanizmima u sisarskim ćelijama i u kontekstu složene hromatinske strukture, dr Vesna Rapić Otrin je od 2006. do sada bila redovno angažovana da kao jedan od predavača na predmetima *Molekularna biologija ćelije I* i *Molekularna biologija ćelije II* prenese doktorskim studentima na programu Molekularna biologija deo svog znanja i iskustva. Ona je to činila sa ogromnim entuzijazmom, umešnošću i uspehom, i na taj način dala svoj nemerljivi doprinos kvalitetu ovog doktorskog programa. Pojačani angažman dr Rapić Otrin od 2013. godine kada je prvi put izabrana u zvanje Gostujući profesor na Univerzitetu u Beogradu omogućio je doktorskim studentima na ovom programu da se još detaljnije upoznaju sa svetskim tokovima savremenih molekularno bioloških istraživanja u oblasti reparacije DNK, s obzirom da je Programski savet doktorskog programa Molekularna biologija doneo odluku da se u program modula Molekularna biologija eukariota uključi poseban izborni predmet pod nazivom *Reparacija DNK – od molekula do humanih oboljenja* koji je poveren dr Vesni Rapić Otrin kao vodećem predavaču.

ZAKLJUČAK

Na osnovu podataka iznetih u ovom referatu vidi se da kandidat, dr Vesna Rapić Otrin, Adjunct Assistant Professor, University of Pittsburgh, USA, ispunjava sve uslove za izbor u zvanje Gostujući profesor na Univerzitetu u Beogradu – Biološkom fakultetu, a na osnovu člana 65 Zakona o visokom obrazovanju, Pravilnika o uslovima i načinu angažovanja gostujućeg profesora na Univerzitetu u Beogradu i člana 129 Statuta Biološkog fakulteta.

Imajući u vidu kvalitet naučno-istraživačkog i pedagoškog rada dr Vesne Rapić Otrin, aktuelnost problematike popravke oštećenja u molekulima DNK kojom se ona bavi, dosadašnji doprinos njenog angažmana kvalitetu doktorskog programa Molekularna biologija, kvalitet nastave koju dr Rapić Otrin realizuje i interesovanje studenata za predmet koji ona vodi uvereni smo da bi dalje angažovanje dr Rapić Otrin bilo izuzetno korisno za razvoj i napredak ovog doktorskog programa. Stoga sa posebnim zadovoljstvom predlažemo Nastavno-naučnom veću Biološkog fakulteta da dr Vesnu Rapić Otrin predloži Veću grupacija Prirodno-matematičkih nauka Univerziteta u Beogradu za ponovni izbor u zvanje Gostujući profesor.

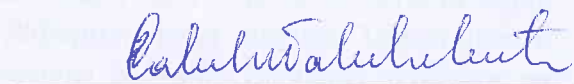
Beograd, 22.01.2018.



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