CURRICULUM VITAE

**PERSONAL INFORMATION**

NAME Maja Sabol (maiden name Čretnik)

DEGREE PhD

ADDRESS Vitezićeva 80, Zagreb, Croatia

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NATIONALITY Croatian

DATE AND PLACE OF BIRTH 28.05.1981. Zagreb

**EDUCATION**

2009 - 2013. specialist course of Project Management (MBA equivalent) at College of Business and Management „Baltazar Adam Krčelić“, Zaprešić (degree obtained on September 1, 2013. Diploma work titled „Analytics Center“, supervisor Neven Žarković, PhD)

2005 – 2010. Postgraduate study of Molecular and Cell Biology, University of Zagreb, Faculty of Science, Department of Biology (PhD degree obtained on June 17, 2010. Thesis titled „Hh-Gli signaling pathway activation in ovarian dermoid primary cultures“, supervisor Sonja Levanat, PhD)

1999 – 2004. Graduate study of Molecular Biology, University of Zagreb, Faculty of Science, Department of Biology (bachelor degree in biology obtained on July 19, 2004. Diploma work titled „Variability of ribosomal RNA genes in dragonfly *Lindenia tetraphylla* (Van der Linden, 1825)“, supervisor Đurđica Ugarković, PhD)

**TRAINING**

2015. Phenomin – European Advanced School for Mouse Phenogenomics, Alsace, France

2015. Processing and analysis of Microscopic Images in Biomedicine, Prague, Czech Republic

2015. Accreditation for working with laboratory animals in accordance with European legislation on animal welfare, Prague, Czech Republic

2014. 3-month stay at the Institute Clinique de la Souris, INSERM-CNRS-University of Strasbourg, Strasbourg, France (Genetic engineering and model validation department, led by dr.sc. Guillaume Pavlovic and dr.sc. Marie-Christine Birling)

2012. International Workshop on miRNA and Virus-Associated Cancers, Dubrovnik, Croatia

2009. 10th International Summer School on Biophysics, Rovinj, Croatia

2008. MedILS Summer School ’08: Hottest topics in protein research. Split, Croatia

2008. EMBO Practical Course on Ubiquitin and SUMO, MedILS, Split, Croatia

2007. DMMC: Epigenetics: From mechanisms to medicines, Dublin, Ireland

2004. short stay in the collaborative laboratory led by Anne-Marie Frischauf PhD, Institut für Genetik & Allgemeine Biologie, Salzburg University, Salzburg, Austria

**WORK EXPERIENCE**

2016 – today Research Associate, Division of Molecular Medicine, Ruđer Bošković Institute

2015 – 2016 senior research assistant, Division of Molecular Medicine, Ruđer Bošković Institute

2013 – 2015 postdoctoral fellow at the Institute of Molecular Genetics of the Czech Academy of Science since October 1, 2013.

2010 – 2013 Senior Research Assistant, Division of Molecular Medicine, Ruđer Bošković Institute

2004 – 2010 Research Assistant, Division of Molecular Medicine, Ruđer Bošković Institute

**ORGANIZATIONAL SKILLS AND COMPETENCIES**

* Involved in Ruđer Bošković Institute Open Days in 2005. (guide) 2008. (guide) and 2010. g. (info point organizer)
* 2008 - Organizer of MedILS Summer School titled 'Hottest topics in protein research'
* 2008 - Assistant on 'EMBO Practical Course on Ubiquitin and SUMO' workshop, MedILS
* 2010 - Organizer of HDIR-1 „From Bench to Clinic“ – first meeting of the Croatian Association for Cancer Research with international participation, Zagreb
* 2012 - Organizer of HDIR-2 „From Bench to Clinic“ – second meeting of the Croatian Association for Cancer Research with international participation, Zagreb
* 2016 - Organizer of HDIR-4 „From Bench to Clinic“ – fourth meeting of the Croatian Association for Cancer Research with international participation, Zagreb

**SCOLARSHIPS AND AWARDS**

2012. fellowship of the Croatian Society of Biocehemistry and Molecular Biology (HDBMB) for participation on FEBS3+ Meeting „From Molecules to Life and Back“, Opatija, Croatia

2011. best poster award at Festival of Science at the Ruđer Bošković Institute (Scientific Encounters of the Third Kind) within the topic „Human – from cell to organism“

2008. travel subsidy for participation on Hedgehog Signaling in Development and Disease conference, Stanford University, CA, USA, June 2008, awarded by the meeting organizing committee

2007. travel subsidy for participation on 12th World Congress on Advances in Oncology and Cancer Chemoprevention Symposium, Chersonissos, Greece, October 2007, awarded by Croatian Ministry of Science, Education and Sports

2007. best poster award (3rd place) at the 4th Meeting of Croatian Association of Human Genetics, Malinska, Croatia

2004. Republic of Croatia National Scolarship, awarded by Croatian Ministry of Science, Education and Sports

2003. Rector's award for student research work, for work performed at the Ruđer Bošković Institute during 2002/03 titled „Application of Comet Assay for DNA damage screening of the photosynthetic organelles“ , supervisor Hrvoje Fulgosi, PhD

**MEMBERSHIPS**

* Croatian Association for Biochemistry and Molecular Biology, member since 2005
* European Association of Cancer Research (EACR), member since 2005
* Croatian Association for Human Genetics, member since 2005
* Croatian Association for Cancer Reseach, treasurer and member of the Presidency sine its foundation in 2009
* Member of the Editorial Academy of International Journal of Oncology since 2007

**TEACHING**

**a) graduate courses**

* Assistant, “Signaling pathways and interactions”, University of Rijeka, Division of Biotechnology, 2009/10, 2011/12
* Assistant, “Recombinant DNA methodology“, University of Applied Health Studies, Zagreb, 2008/09, 2009/10

**b) postgraduate courses**

* Assistant, “Research methods in molecular oncology“, University of Zagreb, School of Medicine, 2009/10, 2010/11, 2011/12
* Assistant, “Signaling pathways in the cell – oncogenes and tumor suppressors”, University of Zagreb, Faculty of Science, 2009/10, 2010/11, 2011/12
* Assistant, “Genomic DNA”, Joint postgraduate study of Molecular Biosciences by University of Osijek, University of Dubrovnik and Ruđer Bošković Institute, 2009/10, 2011/12

since 2018. docent at the University Josip Juraj Strossmayer in Osijek

**SCIENTIFIC SKILLS AND COMPETENCIES**

My major research area is the Hedgehog-Gli signaling pathway and its interactions with other signaling pathways in tumors. During my post-doc I have expanded to generation of new mouse models using genome editing nucleases.

**Laboratory methods:** DNA, RNA and protein extraction from blood, tissue and cell lines, mutation detection and analysis (PCR, agarose gel elesctrophoresis, melting curve analysis, sequencing, sequence analysis, droplet digital PCR, southern blot), gene expression analysis (quantitative real-time PCR), protein analysis (polyacrylamide gel electrophoresis, western blot, immunohistochemistry, immunocitochemistry, immunofluorescence, light and confocal microscopy), work with cell cultures (primary culture establishment, viability and proliferation assays, generation of ES cells), standard molecular biology methods (cloning, transfection, etc.).

**Projects:**

* **Principal investigator** on a project titled „Differential regulation of the GLI code in BRAF/NRAS driven tumors“ (IP-2018-01-4889) approved for funding by the Croatian Science Foundation, planned to begin in 2019.
* 2017-today: collaborator on MIRnaGLI - Novel Molecular Mechanisms for New Therapeutic Approaches: Interactions of microRNAs and Hedgehog-GLI Signaling Pathway in Serous Ovarian Cancer (IP-2016-06-1268), led by Sonja Levanat, PhD
* 2015-today: associate on ProNetMel - New Protein Networks for Novel Therapeutic Avenues in Human Melanoma (IP-2013-11-1615), led by Neda Slade, PhD
* 2013-today postdoctoral fellow on the OP EC CZ 1.07/2.3.00/30.0050 “ Founding the expert platform for phenotyping and imaging technologies”, funded by the Czech Ministry of Education, Youth and Sports (MEYS) and European Social Fund (ESF), led by Radislav Sedláček, PhD
* 2013, assistant on the “InnoMol - Enhancement of the Innovation Potential in SEE through new Molecular Solutions in Research and Development” project, funded by REGPOT Seventh Framework Programme (FP7), led by Oliver Vugrek, PhD
* 2007-2012 assistant on the „Hh-Gli signaling pathway: interactions and potential therapies“ project, led by Sonja Levanat PhD, funded by Croatian Ministry of Science, Education and Sports
* 2005-2007 assistant on the „Developing a method for determination of hereditary predisposition to breast cancer in Croatia“ project, led by Sonja Levanat PhD, funded by Croatian Innovative Technological Development Programme
* 2004-2006 assistant „Signaling pathway SHH/PTCH/SMO in tumors and malformations“ project, led by Sonja Levanat PhD, funded by Croatian Ministry of Science and Technology

**Mentorship**

Diploma thesis: Nikolina Rinčić: „CRISPR/Cas9-mediated generation of GLI1 knock out cell line“, University of Zagreb, Faculty of Science, 2018.

Invited talks:

* **Sabol M.** Talens and CRISPR/Cas9: Generation of genome engineered mouse models using editable nucleases: Practical experience. KI-MU Closing Meeting (Cooperation between Masaryk University and Karolinska Institutet, Stockholm in the field of biomedicine), Brno, April 2015.
* **Čretnik M**, Musani V, Levačić Cvok M, Ozretić P, Levanat S. BRCA1 and BRCA2 polymorphisms in Croatia – frequencies in healthy population, International Journal of Molecular Medicine, Spandidos DA. (ed), The 12th World Congress on Advances in Oncology, and 10th International Symposium on Molecular Medicine, Greece, October 2007.
* **Čretnik M**, Musani V, Levanat S. Methylation status of PTCH promoter in tumors with alterations in HH-GLI signaling pathway, International Journal of Molecular Medicine, Spandidos DA. (ed), The 11th World Congress on Advances in Oncology, and 9th International Symposium on Molecular Medicine,Greece, October 2006.

Other talks:

* **Sabol M,** Ileninova Z. The Czech Centre for Phenogenomics: Design, Generation, and Archiving of your Mutant Mouse Strain. Presentation for students of the Masaryk University, organized by the EC CZ 1.07/2.3.00/30.0050 “Phenoimage” project
* Popular science talk in the „Young Researchers“ (student association) titled „si-RNA, design and application“ , 2005.
* Musani V, **Čretnik M**, Orešković S, Levanat S. Methylation status of PTCH promoter in tumors with alterations in Hh-Gli signaling pathway. Congress of the Croatian Society of Biochemistry and Molecular Biology on the occasion of the 30th anniversary. Vodice, Croatia, 2006.

**ADDITIONAL SKILLS AND COMPETENCIES**

* languages: english, french
* computer use: good command of Microsoft Office™ suite (Word™, Excel™ and PowerPoint™),image analysis programs familiarity (Adobe PhotoShop™, ImageJ), Internet use, Web design (Microsoft FrontPageTM), sequence analysis software (BioEdit, DNAStar suite) and statistics software (MedCalc)
* 2007-2011 research assistants' representative in the Assistants Council and Biomedicine Science Council at the Ruđer Bošković Institute
* One of the Journal Club organizers in 2010 and 2011
* Translator (English to Croatian) of the EuroGenTest info brochures about genetic testing
* Performs diagnostic procedures – genetic testing for hereditary breast and ovarian cancer for the Ruđer-Medikol Diagnostics Ltd. (spin-off company of the Institute)
* Editor of the Book of Abstracts „HDIR-1 From Bench to Clinic“, first meeting of the Croatian Association for Cancer Research with international participation
* Reviewer for several international research journals (Medicine, PlosONE, Cancer Biotherapy and Radiopharmaceuticals, Molecular Medicine Reports, Electronic Journal of Biotechnology, Biochimica and Biophysica Acta, 3 Biotech)

**PUBLICATION LIST**

1. **Čretnik, Maja**; Musani, Vesna; Orešković, Slavko; Leović, Dinko; Levanat, Sonja. The Patched gene is epigenetically regulated in ovarian dermoids and fibromas, but not in basocellular carcinomas. // International Journal of Molecular Medicine, 19 (2007), 6; 875-883 doi:10.3892/ijmm.19.6.875 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q1, cited: 36)

2. Bura, Miljenko; Musani, Vesna; **Čretnik, Maja**; Botica, Iva; Levanat, Sonja. Hedgehog-Patched pathway aberrations in a malignant triton tumor case study. // Oncology Reports, 20 (2008), 2; 347-352 doi:10.3892/or\_00000013 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q1, cited: 3)

3. Levanat, Sonja; **Čretnik, Maja**; Musani, Vesna. Hh-Gli Signaling Pathway Functions and its Therapeutic Potential in Cancer. // Croatica Chemica Acta, 81 (2008), 1; 1-5 (međunarodna recenzija, članak, znanstveni) (Scopus: chemistry Q3, cited: 1)

4. Levačić Cvok, Mirela; **Čretnik, Maja**; Musani, Vesna; Ozretić, Petar; Levanat, Sonja. New sequence variants in BRCA1 and BRCA2 genes detected by high-resolution melting analysis in an elderly healthy female population in Croatia. // Clinical Chemistry and Laboratory Medicine, 46 (2008), 10; 1376-1383 doi:10.1515/CCLM.2008.307 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q2, cited: 16)

5. Sabol, Ivan; **Čretnik, Maja**; Hadžisejdić, Ita; Si-Mohammed, Ali; Matovina, Mihaela; Grahovac, Blaženka; Levanat, Sonja; Grce, Magdalena. A New Approach for the Evaluation of the Human Papillomavirus Type 16 Variability with High Resolution Melting Analysis. // Journal of Virological Methods, 162 (2009), 1-2; 142-147 doi:10.1016/j.jviromet.2009.07.029 (međunarodna recenzija, članak, znanstveni) (Scopus: virology Q2, cited: 8)

6. Willems, Petra; Magri, V.; **Čretnik, Maja**; Fasano, Mauro; Jakubowska, Ania; Levanat, Sonja; Lubinski, J.; Marras, E.; Musani, Vesna; Thierens, Hubert; Vandersickel, Veerle; Perletti, Gianpaolo; Vral; Anne. Characterization of the c.190T>C missense mutation in BRCA1 codon 64 (Cys64Arg). // International journal of oncology, 34 (2009), 4; 1005-1015 doi:10.3892/ijo\_00000226 (međunarodna recenzija, članak, znanstveni) (Scopus: oncology Q1, cited: 6)

7. **Čretnik, Maja**; Poje, Gorazd; Musani, Vesna; Krušlin, Božo; Ozretić, Petar; Tomas, Davor; Šitum, Mirna; Levanat, Sonja. Involvement of p16 and PTCH in pathogenesis of melanoma and basal cell carcinoma. // International journal of oncology, 34 (2009), 4; 1045-1050 doi:10.3892/ijo\_00000230 (međunarodna recenzija, članak, znanstveni) (Scopus: oncology Q1, cited: 16)

8. Musani, Vesna; **Čretnik, Maja**; Šitum, Mirna; Basta-Juzbašić, Aleksandra; Levanat, Sonja. Gorlin Syndrome Patient with Large Deletion in 9q22.32- q22.33 Detected by Quantitative Multiplex Fluorescent PCR. // Dermatology, 219 (2009), 2; 111-118 doi:10.1159/000219247 (međunarodna recenzija, članak, znanstveni) (Scopus: dermatology Q1, cited: 10)

9. Lof-Ohlin, Zarah; Levanat, Sonja; **Sabol, Maja**; Sorbe, Bengt; Nilsson, Torbjorn K. Promoter methylation in the PTCH gene in cervical epithelial cancer and ovarian cancer tissue as studied by eight novel Pyrosequencing assays. // International journal of oncology, 38 (2010), 3; 685-692 doi:10.3892/ijo.2010.889 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q3, cited: 12)

10. Car, Diana; **Sabol, Maja**; Musani, Vesna; Ozretić, Petar; Levanat, Sonja. Epigenetic regulation of the Hedgehog-Gli signaling pathway in cancer. // Periodicum biologorum, 112 (2010), 4; 419-423 (međunarodna recenzija, pregledni rad, znanstveni) (Scopus: medicine (misc.) Q3, cited: 5)

11. Ozretić, Petar; Levačić Cvok, Mirela; Musani, Vesna; **Sabol, Maja**; Car, Diana; Levanat, Sonja. In silico analysis of potential structural and functional significance of human breast cancer gene BRCA2 sequence variants found in 5' untranslated region. // Periodicum biologorum, 112 (2010), 4; 469-474 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q3, cited: 0)

12. Leović, Dinko; **Sabol, Maja**; Ozretić, Petar; Musani, Vesna; Car, Diana; Marjanović, Ksenija; Zubčić, Vedran; Sabol, Ivan; Sikora, Miroslav; Grce, Magdalena, Glavaš-Obrovac, Ljubica ; Levanat, Sonja. Hh-Gli signaling pathway activity in oral and oropharyngeal squamous cell carcinoma. // Head and neck, 34 (2012), 1; 104-112 doi:10.1002/hed.21696 (međunarodna recenzija, članak, znanstveni) (Scopus: otorhinolaryngology Q1, cited: 15)

13. Musani, Vesna; **Sabol, Maja**; Car, Diana; Ozretić, Petar; Orešković, Slavko; Leović, Dinko; Levanat, Sonja. LOH of PTCH1 region in BCC and ovarian carcinoma: microsatellite vs. HRM analysis. // Frontiers in Bioscience-Elite edition, E4 (2012), 3; 1049-1057 doi:10.2741/440 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q2, cited: 4)

14. Maurac, Ivana; **Sabol, Maja**; Musani, Vesna; Car, Diana; Ozretić, Petar; Kalafatić, Držislav; Orešković, Slavko; Babić, Damir; Levanat, Sonja. A low grade ovarian carcinoma case with coincident LOH of PTCH1 and BRCA1, and a mutation in BRCA1. // International journal of gynecological pathology, 31 (2012), 3; 264-271 doi:10.1097/PGP.0b013e31823b6f0f (međunarodna recenzija, članak, znanstveni) (Scopus: obstetrics and gynecology Q2, cited: 6)

15. Levanat, Sonja; Musani, Vesna; Levačić Cvok, Mirela; Sušac, Ilona; **Sabol, Maja**; Ozretić, Petar; Car, Diana; Eljuga, Domagoj; Eljuga, Ljerka; Eljuga, Damir. Three novel BRCA1/BRCA2 mutations in breast/ovarian cancer families in Croatia. // Gene, 498 (2012), 2; 169-176 doi:10.1016/j.gene.2012.02.010 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q1, cited: 8)

16. **Sabol, Maja**; Car, Diana; Musani, Vesna; Ozretić, Petar; Orešković, Slavko; Weber, Igor; Levanat, Sonja. The Hedgehog signaling pathway in ovarian teratoma is stimulated by Sonic Hedgehog which induces internalization of Patched. // International journal of oncology, 41 (2012), 4; 1411-1418 doi:10.3892/ijo.2012.1554 (međunarodna recenzija, članak, znanstveni) (Scopus: oncology Q2, cited: 6)

17. Musani, Vesna; **Sabol, Maja**; Car, Diana; Ozretić, Petar; Kalafatić, Držislav; Maurac, Ivana; Orešković, Slavko; Levanat, Sonja. PTCH1 gene polymorphisms in ovarian tumors: Potential protective role of c.3944T allele. // Gene, 517 (2013), 1; 55-59 doi:10.1016/j.gene.2012.12.089 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q1, cited: 5)

18. **Sabol, Maja**; Trnski, Diana; Užarević, Zvonimir; Ozretić, Petar; Musani, Vesna; Rafaj, Maja; Cindrić, Mario; Levanat, Sonja. Combination of cyclopamine and tamoxifen promotes survival and migration of MCF-7 breast cancer cells – interaction of Hedgehog-Gli and Estrogen receptor signaling pathways. // PLOS ONE, 9 (2014), 12; e114510-1 doi:10.1371/journal.pone.0114510 (međunarodna recenzija, članak, znanstveni) (Scopus: medicine (misc.) Q1, cited: 12)

19. Ozretić, Petar; Bisio, Alessandra; Musani, Vesna; Trnski, Diana; **Sabol, Maja**; Levanat, Sonja; Inga, Alberto. Regulation of human PTCH1b expression by different 5' untranslated region cis-regulatory elements. // RNA Biology, 12 (2015), 3; 290-304 doi:10.1080/15476286.2015.1008929 (međunarodna recenzija, članak, znanstveni) (Scopus: molecular biology Q1, cited: 4)

20. Trnski, Diana; **Sabol, Maja**; Gojević, Ante; Martinić, Marina; Ozretić, Petar; Musani, Vesna; Ramić, Snježana; Levanat, Sonja. GSK3β and Gli3 play a role in activation of Hedgehog-Gli pathway in human colon cancer — Targeting GSK3β downregulates the signaling pathway and reduces cell proliferation. // Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease, 1852 (2015), 12; 2574-2584 doi:10.1016/j.bbadis.2015.09.005 (međunarodna recenzija, članak, znanstveni) (Scopus: molecular medicine Q1, cited: 15)

21. Levanat, Sonja; **Sabol, Maja**; Musani, Vesna; Ozretić, Petar; Trnski, Diana. Hedgehog Signaling Pathway as Genetic and Epigenetic Target in Ovarian Tumors. // Current pharmaceutical design, 23 (2017), 1; 73-94 doi:10.2174/1381612822666161006154705 (međunarodna recenzija, članak, znanstveni) (Scopus: pharmacology, cited: 0)

22. Ozretić, Petar; Trnski, Diana; Musani, Vesna; Maurac, Ivana; Kalafatić, Držislav; Orešković, Slavko; Levanat, Sonja; **Sabol, Maja**. Non-canonical Hedgehog signaling activation in ovarian borderline tumors and ovarian carcinomas. // International journal of oncology, 51 (2017), 6; 1869-1877 doi:10.3892/ijo.2017.4156 (međunarodna recenzija, članak, znanstveni) (Scopus: oncology, cited: 0)

23. Musani, Vesna; Ozretić, Petar; Trnski, Diana; **Sabol, Maja**; Poduje, Sanja; Tošić, Mateja; Šitum, Mirna; Levanat, Sonja. Potential hot spot for de novo mutations in PTCH1 gene in Gorlin syndrome patients: a case report of twins from Croatia. // Croatian medical journal, 59 (2018), 1; 20-24 doi:10.3325/cmj.2018.59.20 (međunarodna recenzija, prikaz, znanstveni) (WoS: medicine, general & internal Q3, cited: 0)

24. **Sabol, Maja**; Trnski, Diana; Musani, Vesna; Ozretić, Petar; Levanat, Sonja. Role of GLI Transcription Factors in Pathogenesis and Their Potential as New Therapeutic Targets. // International journal of molecular sciences, 19 (2018), 9; 2562, 37 doi:10.3390/ijms19092562 (međunarodna recenzija, pregledni rad, znanstveni) (Scopus: medicine (misc) Q1, cited: 0)

Total number of publications: 24, 23 indexed by WoSCC and 24 by Scopus databases.

Total nuber of citations in WoSCC/Scopus:186/190.

Total/average number of citations: 186 / 7,61 (WoSCC); 190 / 7,91 (Scopus)

h-index WoSCC/Scopus: 8/8

Sum of all impact factors is 55,125, median 2,28 (in the year of publication).