***Curriculum Vitae: Siba M. Yousef Shanak***

***Address:***

Siba Shanak

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***Personal Information:***

• ***Name:*** Siba M. Y. Shanak (Ismael)

• ***Date of Birth:*** September 24, 1985

• ***Place of Birth:*** Abu Dhabi/ United Arab Emirates

• ***Marital Status:*** Married, with three children

• ***Nationality:*** Palestinian

***Education:***

• PhD in Bioinformatics (magna cum laude) at the Saarland University, Saarbrücken, Germany, January, **2015**.

*Title of the PhD Thesis:*

“Dynamics of epigenetic reader proteins and their interplay with expression in development”.

• M.Sc. in Computational Molecular Biology/ Bioinformatics (Honor’s degree), Saarland University, Saarbruecken, Germany, **2009.**

*Title of the M. Sc. Thesis:*

“On the Origin of Genomic Imprinting”

• B.Sc. in Biology and Biotechnology (Honor’s degree), Arab American University, Jenin, Palestine, **2006.**

GPA: 3.99 out of 4 with an ‘excellent’ standing; first ranked in the Department of Biology and Biotechnology, the Faculty of Arts and Sciences, and the University of AAUJ. B.Sc. was finished in 3 years (Regular time for B.Sc. in Biology and Biotechnology is 4 years).

• Secondary School Leaving Certificate (Tawjihi) – Scientific Stream   
Ya’bad Secondary School, **2003/** Palestine

Average: 97.1%

***Academic Honors:***

* Zamalah fellowship for a scientific research visit 06/2017-08/2017, Germany.
* Internal funding for scientific research, AAUJ, 2016.
* Scholarship for a PhD Program *in Germany* by the German Academic Exchange Service (DAAD, **D**eutscher **A**kademischer **A**ustausch **D**ienst), **08/2012 – 01/2015.**
* Scholarship for an M.Sc. Program *in Germany* by the German Academic Exchange Service (DAAD, **D**eutscher **A**kademischer **A**ustausch **D**ienst), **03/2008 - 09/2009.**
* Scholarship for a B.Sc. Program in AAUJ by the Palestinian Ministry of Higher Education, **09/2003- 06/2006**.

***Professional Experience:***

***In the Academic Year 2006- 2007:***

Lab technician within the department of Biology and Biotechnology at the Arab American University- Jenin with an excellent performance.

Labs prepared:

- In Fall Semester 2006/2007: Biology Lab I, Biology for Medical Students Lab, Biochemistry Lab, Immunology Lab, and Animal Biology Lab.

- In Spring Semester 2006/2007: Plant Cell Culture Techniques, Biology for

Medical Students Lab, Biochemistry Lab, and Genetics Lab

***In the Academic Year 2007- 2008:***

Research assistant (Winter Semester 07/08; August 2007 – February 2008) in the work group of professor Volkhard Helms, Department of Computational Biology, Saarland University, Germany in the field of Computational Analysis of Genomic Imprinting.

***In the Academic Year 2008- 2009:***

Practical Experience (Winter break 08/09; March 2009) at the University Hospital of Heinrich-Heine University- Düsseldorf, Germany in the field of DNA isolation, Nanodrop technology for DNA quantification and detection of quality, Bisulfite treatment for the detection of differential methylation as well as Real-Time PCR.

***In the Academic Year 2009- 2010:***

- Practical experience in the labs of the department of Biology and Biotechnology at the Arab American University- Jenin after fulfilling my vacation for the Master’s study. I dealt with genetics, recombinant biology and biochemistry labs.

- Teaching some courses in the department of Biology and Biotechnology at the Arab American University. These included:

- in Fall Semester (1st, FS) 2009/2010: Biology Lab I, and Biology for Medical Students Lab

- in Spring Semester (2nd, SS) 2010: Biology II labs, and Bioinformatics and Computational Biology course

- in Summer semester, 2010: Biology I Lab.

***September 2010- July 2012:***

- Instructor in the department of Biology and Biotechnology at the Arab American University- Jenin (then on leave vacation)

- Internal Evaluator for Zuhair Hijjawi Awards for Scientific Research - 2011.

***August 2012- January 2015:***

PhD student at the Chair of Computational Biology- Workgroup Prof. Dr. Helms.

***January 2015- present:***

Assistant Professor at the Arab American University- Jenin/Palestine.

***September 2015- August 2016:***

Head of the Department of Biology and Biotechnology- Arab American Univeristy/Jenin.

***Research Areas:***

* Molecular Dynamics Simulations of protein-DNA complexes.
* Machine learning for Next-Generation Sequencing data; exon usage, Analysis of RNA-Seq and ChIP-Seq data.
* Study of Genomic Imprinting; including:

- Working on housekeeping genes with the group of V. Helms (2009) under the supervision of B. Hutter and M. Paulsen.

- Prediction of the functional networks for the imprinted genes known so far in human; analysis of the expression arrays, array normalization, etc.

* Plant Cell Culture Techniques
* Animal Tissue Engineering
* Cell-free extracts; targeting DNA methylation, biochemistry tools
* Recombinant DNA technology
* Biochemistry tools

***Research Interests:***

* Continuous and stochastic simulation for the cellular processes.
* Machine learning for the prediction of possible genetic diseases and disorders, including SNPs, missense mutations, differential methylation, etc.
* Docking
* Modeling of biological databases
* Study of *in silico* drug optimization through pharmacokintetics, pharmacodynamics, and ADMET properties.
* Next-Generation Sequencing.

***Taught Courses:***

- Bioinformatics and Computational Biology (Spring 2010; spring2011; spring 2015; spring 2016)

- Biochemistry I (summer 2015; fall 2015/2016; summer 2016, fall 2016/17)

- Biochemistry I Lab (fall 2010/11; Spring 2011; summer 2011, fall 2016/17)

- Biology for Medical Students (Summer 2011, fall 2014, fall 2015/16, spring 2016)

- Biology Lab for Medical Students/Sciences (Fall 2009/10, spring 2011; summer 2011, fall 2014, summer 2015, fall 2015/2016, spring 2016, summer 2016)

- General Biology I (summer 2011; fall 2014)

- General Biology I Lab (fall 2009/10; summer 2011)

- General Biology II Lab (spring 2010)

- Seminar (fall 2016/2017)

***Teaching Capabilities:***

Topics in Bioinformatics, including *in silico* drug prediction, statistical analysis for cancer prediction, protein interaction prediction, dynamic simulation for cellular response to different stimuli, etc. Also, I am able to teach different topics at the bachelor’s level in the field of biology and biotechnology with high potential.

***Computer Skills:***

- Different programming languages, including C++, R statistical language, and Python.

- Linux scripting, html scripting and parsing, xml, etc.

***Workshops, meetings and conferences:***

- PGSB Cooperation Workshop, (Julich Research Center), 9/5/2017, Palestine Technical University- Kadoorie.

- Conference of Genomics and Bioinformatics, 13-15/11/2016; Emirates University; United Arab Emirates (*Invited speaker*).

- Fifth Palestinian Conference on Modern Trends in Mathematics and Physics, organizing committee, 31.07-2.08/2016.

- The Fourth Conference on Biotechnology Research and Application in Palestine, scientific and organizing committees, 21.03.2016, The Arab American University- Jenin.

- Hünfeld meetings in Function, Structure and Dynamics of Biomolecules; April, 2013 (poster presented) and April, 2014 (oral presentation)

- 552 WE-Heraeus Seminar in Physics of Biomolecular Folding and Assembly: Theory meets Experiment 02 – 06 February 2014 in the Physikzentrum Bad Honnef/Germany (poster presentation).

- SFB 1027 Seminars in September 2013 (poster presentation).

* + Meeting for DAAD Scholarship holders was organized in Cologne: 20-22 March
  + 2009 and October, 2012; with academic workshops for the academic and cultural exchange between home country and German society as well as several seminars in scientific and cultural fields.

***Languages:***

• ***Arabic:*** mother tongue

• ***English:*** very good in written and spoken

• ***German:*** good in written and spoken

***Supervised M.Sc. Theses:***

* + Advisor for the thesis of Hezha Hassan, entitled ‘*Relations between imprinted genes and protein kinases as well as chromatin remodelers*’, 2014- Chair of Computational Biology. Saarland University.
  + External examiner for an M.Sc. thesis: Nadine Qalalweh, ‘*Preparation of ester compounds of aromatic alcohol (2-phenoxy ethanol) and the study of certain biological characteristics’,* 2015- An-Najah National University.
  + External examiner for an M.Sc. thesis: Yasmin Tamimi; ‘*Define Runs of Homozygosity in Palestinian Cohort’*; September 2016, Bethlehem University.
  + External examiner for an M.Sc. thesis: Muna Abu Alrub ‘Extraction, characterization and application of essential oil, used as insecticide or insect repellent, from native Palestinian plants’; June 2017, An-Najah National University.

***Publications:***  
1. Zaid,H., **Ismael-Shanak,S**., Michaeli,A., Rayan, A. (2012) Frontiers in Bioscience, Vol.17, pp232-247. *Computerized modeling techniques predict the 3D structure of H4R: Facts and fiction.*

2. Hamed, M., **Ismael, S.,** Paulsen, M., and Helms, V. (2012) PLoS ONE, Vol.7, e50285. *Cellular functions of genetically imprinted genes in human and mouse as annotated in the Gene Ontology.*

3. **Shanak, S.** and Helms, V. (2014) J Chem Phys, Vol. 141, 22D512. *Hydration properties of natural and synthetic DNA sequences with methylated adenine or cytosine bases in the R.DpnI target and BDNF promoter studied by molecular dynamics simulations*.

4. Helms, V. and **Shanak S.** (2015) *How MeCP2 and R.DpnI Proteins Recognize Methylated DNA.* Biophysical Journal, [Vol. 108, Issue 2](http://www.cell.com/biophysj/issue?pii=S0006-3495(14)X0028-7), p399a.

5. Schenkelberger, M.; **Shanak, S.**; Finkler, M.; Worst, E.; Noireaux, V.; Helms, V.; Ott, A. (2017) Expression regulation by a methyl-CpG binding domain in an *E. coli* based, cell-free TX-TL system. *Physical Biology* **2017,** *14*, 026002.

6. **Shanak, S.;** Ulucan, O.; Helms, V. (2017) Methylation-targeted specificity of the DNA binding proteins R.DpnI and MeCP2 studied by molecular dynamics simulations. *Journal of Molecular Modeling*.

7. **Shanak, S**., Barghash, A., and Helms, V. (2017) *Episplicing: co-occurring alternative exon usage and intragenic epigenetic modifications in adult, fetal, and cultured human cells* (*submitted for publication*).

8. **Shanak S.** and Helms V. (2017) *Salt conditions affect interaction of MBD2 protein with methylated and unmethylated DNA* (*to be submitted*).

***Books:***

1. Saad B., Zaid H., **Shanak S.**, and Kaadan S. (2017) *Medicinal Plants and their Active Compounds for Diabetes and Obesity Prevention and Treatment*. Springer…