

Curriculum Vitae

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EDUCATION BACKGROUND

2013 PhD, Nanobiotechnology, Tarbiat Modares University, Iran

2012 Visiting Researcher, Wellman Center for Photomedicine at Massachusetts General Hospital,

Harvard Medical School, Boston USA

2008 MSc, Medical Biotechnology, Tabriz University of Medical sciences, Iran

2005 BSc, Medical Laboratory Science, Iran University of Medical sciences, Iran

Thesis

M.Sc. thesis: “Identification and cloning of ECM33 homologue gene of *Aspergillus Niger* and preparation of a gene construct for its functional disruption”, (2003-2007)

PhD thesis: “gene therapy of prostate cancer by chitosan nanoparticle containing ODNs of Anti sense EGFR and Anti sense Bcl-2”, (2008-2013)

Honors and Grants

03/2011 IRANIAN NANOTECHNOLOGY INITIATIVE COUNCIL prize for our research on gene delivery.

09/2016, Ranked 34th among all faculty members in Iran, by Iran Science Elites Federation (ISEF),

09/2016, Iran Science Elites Federation (ISEF) Grant award for high-impact published papers

2015-2016 Iran Science Elites Federation (ISEF) Grant award.

2015-2016, IRANIAN NANOTECHNOLOGY INITIATIVE COUNCIL grant award (winning 4 times) for high-impact published papers.

Faculty Academic Appointments

05/2003-05/2005 Chair of student research committee, Iran University of Medical Science
(Committee Service)

09/2008-09/2011 Lecturer Biological Department, **I.A.U.V.** (Islamic Azad University- Varamin-
Pishva Branch)

05/2012-12/2012 Visiting Researcher Wellman center at **MGH** and **Harvard Medical School**,
Boston

01/2014- Present Assistant Professor Medical Nanotechnology Department **IUMS** (Iran
University of Medical Science)

01/2015- Present Founding Board members of Biotechnology Research Center

01/2015- Present Members of Molecular and Cellular Research Center

Report of Local Teaching and Training

Islamic Azad University- Varamin- Pishva Branch

<u>Term</u>	<u>Title</u>	<u>Role</u>	<u>Type / No. Students</u>
Fall 2009	Biotechnology	Principal Instructor	Lecture / 100 Ugrad
Spring 2009	Biotechnology	Principal Instructor	Lecture / 86 Ugrad
Fall 2010	Biotechnology	Principal Instructor	Lecture / 120 Ugrad
Spring 2010	Biotechnology	Principal Instructor	Lecture / 67 Ugrad
Fall 2011	Biotechnology	Principal Instructor	Lecture / 56 Ugrad
Spring 2011	Biotechnology	Principal Instructor	Lecture / 98 Ugrad

Iran University of Medical Science

<u>Term</u>	<u>Title</u>	<u>Role</u>	<u>Type / No. Students</u>
Spring 2014	Nanobiotechnology	Principal Instructor	Lecture / 6 Grad
Spring 2014	Introduction to nanotechnology	Instructor	Lecture / 6 Grad
Fall 2014	Introduction to nanotechnology	Principal Instructor	Lecture / 6 Grad
Fall 2014	Nanotechnology Tools	Instructor	Lecture / 6 Grad
Fall 2014	Nanomedicine 1	Instructor	Lecture / 10 Grad
Spring 2015	Nanobiotechnology	Principal Instructor	Lecture / 10 Grad
Spring 2015	Introduction to nanotechnology	Principal Instructor	Lecture / 10 Grad
Fall 2015	Introduction to nanotechnology	Instructor	Lecture / 10 Grad
Fall 2015	Nanosafety	Principal Instructor	Lecture / 10 Grad
Fall 2015	Bioinformatics	Principal Instructor	Lecture / 6 Grad
Spring 2016	Nanomaterials and nanostructures	Principal Instructor	Lecture / 6 Grad

Spring 2016	Targeted Therapy for Cancers	Instructor	Lecture / 6 Grad
Spring 2016	Introduction to nanotechnology	Principal Instructor	Lecture / 6 Grad
Spring 2016	Nanomedicine 2	Instructor	Lecture / 6 Grad
Fall 2016	Introduction to nanotechnology	Principal Instructor	Lecture / 6 Grad
Fall 2016	Nanosafety	Principal Instructor	Lecture / 6 Grad
Fall 2016	Bioinformatics	Principal Instructor	Lecture / 6 Grad
Fall 2016	Toxicology	Instructor	Lecture / 6 Grad

Laboratory and Other Research Supervisory and Training Responsibilities:

Current & Past Graduate Students Advised

Name	Prior University	Project Area
Sajad Bahrami	IUMS	Graphene- Tissue engineering
Masoome Sori	IUMS	Gene Delivery- Nanoparticles
Akbar Hassanzade	IUMS	Gene Delivery- Carbon Dots
Sajad Rahiminejad	IUMS	Drug Delivery- Smart Nanoparticles
Roya Khodaie	IUMS	Drug Delivery- Smart Nanoparticles
Mehrdad Bayandri	IUMS	Drug Delivery- Smart Nanoparticles
Reza Khosravi	IUMS	Cancer Biology- mirRNA Delivery

Theses

2016 Thesis Advisor: Sajad Bahrami, “Design and Synthesis of Electroactive and Biocompatible Three Dimensional Gelatin Coated Graphene Foam Nanostructure for

- Cardiac Tissue Engineering”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2016 Thesis Advisor: Akbar Hassanzade, “Design and synthesis of carbon- dot - poly-L-lysine as nano carriers for genetic material”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2016 Thesis Advisor: Mehrdad Bayandri, “Design ,synthesis and optimization of smart Alginate- Polyethylenimine nanoparticles as suitable nanocarriers for gene delivery”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2016 Thesis Advisor: Roya Khodaie, “Design ,synthesis and optimization of smart chondroitin sulfst - Polyethylenimine nanoparticles as suitable nanocarriers for gene delivery”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2015 Thesis Advisor: Masoome Sori, “Design ,synthesis and optimization of Hyaluronic Acid-PLL coreshell nanoparticles as suitable nanocarriers for gene delivery”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2015 Thesis Advisor: Sajad Rahiminejad, “Design ,synthesis and optimization of smart hyaluronic acid - Polyethylenimine nanoparticles as nanocarriers for gene delivery”, Department of Medical Nanotechnology, Iran University of Medical Sciences.
- 2015 Thesis Advisor: Reza Khosravi, “Stimulus-responsive smart nanostructure based drug/gene delivery”, Department of Medical Nanotechnology, Iran University of Medical Sciences.

RESEARCH & REVIEW ARTICLES

Mahdi Karimi, Masoud Eslami, Parham Sahandi Zangabad, Fereshteh Mirab, Negar Faraji, Zahra Shafaei, Deepanjan Ghosh, Michael R. Hamblin “pH-Responsive smart nanocarriers for targeted

delivery of therapeutic agents”, **The Wiley Interdisciplinary Reviews (WIREs)**, (Online in January 2016).

<http://wires.wiley.com/WileyCDA/WiresArticle/wisId-WNAN1389.html>

Mahdi Karimi, Amir Ghasemi, Parham Sahandi Zangabad, Hamed Mirshekari, Masoud Moosavi basri, Zahra Shafaei Pishabad, Mohammad Amiri, Arya Aslani, Mahnaz Bozorgomid, Deepanjan Ghosh, Ali Beyzavi, Akbar Vaseghi, Amir R. Aref, Leila Haghani, Sajad Bahrami, Michael R. Hamblin, “Stimuli responsive smart drug/gene delivery systems”, **Chemical Society Reviews (CSR)**, Royal Society of Chemistry (RSC) (Online in January 2016).

<http://pubs.rsc.org/en/content/articlelanding/2016/cs/c5cs00798d#!divAbstract>

Hedieh Malekzad, Parham Sahandi Zangabad, Hamed Mirshekari, **Mahdi Karimi**, Michael R Hamblin, “[Noble metal nanoparticles in biosensors: recent studies and applications](#)”. Nanotechnology Reviews. 2016.

Mahdi Karimi, Parham Sahandi Zangabad, Fatemeh Mahdizadeh, Hedieh Malekzad, Alireza Ghasemi, Sajad Bahrami, Hossein Zare, Mohsen Moghoofei, Amin Hekmatmanesh, Michael R Hamblin. “[Nanocaged Platforms: Modification, Drug Delivery and Nanotoxicity: Opening Synthetic Cages to Release the Tiger](#)” . Nanoscale. 2016

Rezvan Mobasseri, **Mahdi Karimi**, Lingling Tian, Hossein Naderi-Manesh, Seeram Ramakrishna. “[Hydrophobic lapatinib encapsulated dextran-chitosan nanoparticles using a toxic solvent free method: fabrication, release property & in vitro anti-cancer activity](#)”. Materials Science and Engineering: C. 2016

Mahdi Karimi, Hamed Mirshekari, Masoumeh Aliakbari, **Parham Sahandi Zangabad**, Michael R. Hamblin, “Smart Mesoporous Silica Nanoparticles for Controlled-Release Drug Delivery”, **Nanotechnology Reviews (Online in January 2016)**.

<http://www.degruyter.com/view/j/ntrev.just-accepted/ntrev-2015-0057/ntrev-2015-0057.xml>

Mahdi Karimi, Hosein Zare, Narges Yazdani, Elmira Mohamed, Leila Bakhtiari, **Parham Sahandi Zangabad**, S.M. Moosavi basri “Nanotechnology in Diagnosis and Treatment of Coronary Artery Disease”, (**Nanomedicine, Future Medicine**, (Online in February 2016).

<http://www.futuremedicine.com/doi/abs/10.2217/nmm.16.3>

Mahdi Karimi, Sajad Bahrami, Hamed Mirshekari, Parham Sahandi Zangabad, Michael R. Hamblin, “Albumin based nanostructures for biomedical applications: a review and new trends” (**Expert Opinion on Drug Delivery**, 2015).

<http://www.tandfonline.com/doi/abs/10.1080/17425247.2016.1193149>

Mahdi Karimi[§], Parham Sahandi Zangabad[§], Alireza Ghasemi, , Mohammad Amiri, Amir Ghasemi Mohsen Bahrami, Hadi Ghahramanzadeh Asl, Mohammad Reza Rahmani Taji Boyuk, Zahra Mahdih, Hedieh Malekzad, Michael R. Hamblin, “Temperature responsive nanocarriers for drug and gene delivery” (**ACS Applied Materials & Interfaces**, June 2016).

<http://pubs.acs.org/doi/abs/10.1021/acsami.6b00371>

Mahdi Karimi, Bahrami, S., Mirshekari, H., Basri, S. M. M., Bakhshian Nik, A., Aref, A. R., . . . Hamblin, M. R. (2016). Microfluidic systems for stem cell-based neural tissue engineering. Lab on a Chip

<http://pubs.rsc.org/en/content/articlelanding/2016/lc/c6lc00489j>

Mahdi Karimi, Hamed Mirshekari, Seyed Masoud Moosavi Basric, Sajad Bahramia, Mohsen Moghoofei, Michael R. Hamblin, Bacteriophages and phage-inspired nanocarriers for targeted delivery of therapeutic cargos. *Advanced Drug Delivery Reviews*, 2016
<http://www.sciencedirect.com/science/article/pii/S0169409X16300795>

Michael R Hamblin, Long Y Chiang, Shanmugamurthy Lakshmanan, Ying-Ying Huang, Maria Garcia-Diaz, **Mahdi Karimi**, Alessandra Nara de Souza Rastelli, Rakkiyappan Chandran. Nanotechnology for photodynamic therapy: a perspective from the Laboratory of Dr. Michael R. Hamblin in the Wellman Center for Photomedicine at Massachusetts General Hospital and Harvard Medical School. *Nanotechnology reviews* 2015.
<https://www.degruyter.com/view/j/ntrev.2015.4.issue-4/ntrev-2015-0027/ntrev-2015-0027.xml>

Mahdi Karimi, Avci P, Mobasseri R, Hamblin M and Naderi-Manesh H. The novel albumin–chitosan core–shell nanoparticles for gene delivery: preparation, optimization and cell uptake investigation. *J Nanopart Res* 2013; 15: 1.
<http://link.springer.com/article/10.1007/s11051-013-1651-0>

Mahdi Karimi, Navid Solati, Mohammad Amiri, Hamed Mirshekari, Elmira Mohamed, Mahdiar Taheri, Mahshid Hashemkhani, Ahad Saeidi, Mehrdad Asghari Estiar, Parnian Kiani, Amir Ghasemi, Seyed Masoud Moosavi Basri, Amir R Aref & Michael R Hamblin. Carbon nanotubes part I: preparation of a novel and versatile drug-delivery vehicle. *Expert Opin. Drug Deliv.*(2015) 12(7)
www.tandfonline.com/doi/abs/10.1517/17425247.2015.1003806

Mahdi Karimi, Hedieh Malekzad, Parham Sahandi Zangabad, Michael R. Hamblin, “Role of noble metal Nanostructures in nanobiosensors: recent advances and applications” (**ACCEPTED**, *Nanotechnology Reviews*, DeGruyter, 2016).

Mahdi Karimi, Navid Solati, Amir Ghasemi, Mehrdad Asghari Estiar, Mahshid Hashemkhani, Parnian Kiani, Elmira Mohamed, Ahad Saeidi, Mahdiar Taheri, Pinar Avci, Amir R Aref, Mohammad Amiri, Fazel Baniasadi & Michael R Hamblin. Carbon nanotubes part II: a remarkable carrier for drug and gene delivery. *Expert Opin. Drug Deliv.*(2015) 12(7)
<http://www.tandfonline.com/doi/abs/10.1517/17425247.2015.1004309>

Vatansever F, de Melo WC, Avci P, Vecchio D, Sadasivam M, Gupta A, Chandran R, **Mahdi Karimi**, Parizotto NA, Yin R, Tegos GP and Hamblin MR. Antimicrobial strategies centered around reactive oxygen species - bactericidal antibiotics, photodynamic therapy and beyond. *FEMS Microbiol Rev* 2013.
<http://femsre.oxfordjournals.org/content/37/6/955.abstract>

Mirza Ali Mofazzal Jahromi, **Mahdi Karimi**, Keyhan Azadmanesh, Hossein Naderi Manesh, Zuhair Mohammad Hassan, Seyed Mohammad Moazzeni. The effect of Chitosan Tri poly phosphate Nanoparticles in Maturation and Function of Dendritic Cells. *Comp Clin Pathol*
<http://link.springer.com/article/10.1007/s00580-013-1799-0>

Mahdi Karimi, Pinar Avci, Mohsen Ahi , Tarane Gazori , Michael R Hamblin, Hossein Naderi-Manesh.” Evaluation of Chitosan-Tripolyphosphate Nanoparticles as a p-shRNA Delivery Vector: Formulation, Optimization and Cellular Uptake Study”. *Journal of Nanopharmaceutics and Drug Delivery*, Vol. 1, 1–13, 2013
<http://www.ingentaconnect.com/content/asp/jnd/2013/00000001/00000003/art00004>

Mahdi Karimi, Hamed Mirshekari, Parham Sahandi Zangabad, S. M. Moosavi Basri, Hedieh Malekzad, Fazel Baniasadi, Maryam Sharifi Aghdam, Michael R. Hamblin, "Plant protein based nanocarriers in drug delivery" (ACCEPTED, **CRITICAL REVIEWS IN BIOTECHNOLOGY**, 2016).

Mahdi Karimi*, Parham Sahandi-Zangabad*, Hamed Mirshekari, Soodeh Baghae Ravari, Michael R. Hamblin, "Smart nanostructures for cargo delivery: Uncaging and activating by light", (Under-Review, **Journal of American Chemical Society (JACS)**, 2016).

Mahdi Karimi, Hamed Mirshekari, Parham Sahandi Zangabad, Sajad Bahrami, Majid Askari, Amir Ghasemi, Armita Shahbazkhan, Michael R Hamblin, "Enzyme responsive smart nano-carrier for targeted delivery of therapeutic agents, (Under-Review, **Current Cancer Drug Targets**, 2016).

Mahdi Karimi*, Parham Sahandi Zangabad*, Fatemeh Mehdizadeh, Alireza Ghasemi, Mohsen Moghoofei, Amin Hekmatmanesh, Hura Hashemi, Michael R Hamblin, " Nanocages for Drug Delivery: Opening the Cage to Release the Tiger", (Under-Review, **Nanoscale**, 2016).

Mahdi Karimi, Parham Sahandi Zangabad, Hamed Mirshekari, Seied Masoud MoosaviBasri, Hamid Hamed, Sara Zareei, Maryam Sharifi Aghdam, Fazel Baniasadi, Michael R. Hamblin, "Structural-protein based nanoparticles: Properties and Applications in Drug Delivery Systems", (Under-Revision, **Journal of Controlled Release**, 2016).

Mahdi Karimi, Ali Mofazzal Jahromi, Parham Sahandi Zangabad, Michael R. Hamblin as invited authors, "Topical and nano-scaled systems as platforms for controlled delivery of antimicrobials for preventing thermal wound infection and healing; new therapeutic approaches", (Under-Submission, Invited Review Paper, **Advanced Drug Delivery Reviews (ADDR)**).

Mahdi Karimi, Parham Sahandi Zangabad, Soroush Mirkiani, Hamid Hamed, Maryam Masrouf, Michael R. Hamblin, Smart Liposomes and lipid based nanoparticles for stimuli-responsive delivery of therapeutic agents (Under-Preparation, 2016)

Books

M. Karimi*, P. Sahandi Zangabad*, A. Ghasemi*, M.R. Hamblin, "Smart external stimulus responsive nanocarriers for drug and gene delivery", (Morgan & Claypool Publishers - IOP Concise Physics), Autumn 2015.

ISBN 978-1-6817-4202-1 (ebook)

ISBN 978-1-6817-4138-3 (print)

DOI 10.1088/978-1-6817-4202-1

<http://iopscience.iop.org/book/978-1-6817-4202-1>

M. Karimi*, P. Sahandi Zangabad*, A. Ghasemi*, M.R. Hamblin, "Smart internal stimulus responsive nanocarriers for drug and gene delivery ", (Morgan & Claypool Publishers - IOP Concise Physics), ISBN 978-1-6817-4257-1 (ebook)

ISBN 978-1-6817-4256-4 (print)
DOI 10.1088/978-1-6817-4257-1
<http://iopscience.iop.org/book/978-1-6817-4257-1>

Conferences And Presentations

1. Mofazzal Jahromi MA, Moazzeni SM, Naderi-Manesh H, **Mahdi Karimi**, The effect of nanoparticles on maturation of Dendritic cells, 11th International Congress of Immunology and Allergy of Iran, April 2012
2. Rezvan Mobasseri, **Mahdi Karimi**, HosseinNaderi-Manesh. Optimization of preparation of Chitosan-Dextran based-nanoparticles as drug carriers, The 17th national and 5th International Iranian Biology conference, September 2012
3. **Mahdi Karimi**, Yazdanparast A , Aref A, Beyzavi A. Microfluidic as a useful tool in cell biology and technology. 3rd Iranian Congress on Medical Mycology, April 2014.

Narrative Report

My research interests are broadly in the area of nanobiotechnology. This area concentrates on gene and drug delivery via smart and targeted nanoparticles to cancer cells or stem cells. At present, I focus on designing smart and targeted polymeric nanoparticles for ODNs as well as gene delivery to cancer cells, especially prostate and breast cancer cells. As well as, the combination of microfluidic technology, nanotechnology and tissue engineering is my new interest.

References

Michael R. Hamblin,

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Wellman Center for Photomedicine, 40 Blossom Street-BAR 414 Boston, Massachusetts 02114
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