Jennifer Patterson

Curriculum Vitae

Professional Preparation

- Princeton University (USA), Department of Chemical Engineering, B.S.E. – 1998
- University of Washington (USA), Department of Bioengineering, Ph.D. – 2007
- École Polytechnique Fédérale de Lausanne (Switzerland), Institute for Bioengineering, postdoctoral fellow – 2007-2011

Appointments

- Researcher and Group Leader, IMDEA Materials Institute (Spain) – August 2020 onwards (with guest appointment June 2020 to August 2020 due to COVID-19 pandemic)
- Independent Consultant (Belgium) – December 2018 onwards
- Chief Scientific Officer, BIOFABICS LDA (Portugal) – August 2017 - May 2020
- Assistant Professor, Department of Materials Engineering, KU Leuven (Belgium) – October 2011 to March 2017 (with guest appointments March 2017 to December 2017 and September 2018 to September 2019)
- Research Assistant, Therics, Inc. (USA) – September 1998 to September 2001

Publications (10 selected)

Piluso, S., Labet, M., Zhou, C., Seo, J.W., Thielemans, W., **Patterson, J.** (2019). Engineered three-dimensional microenvironments with starch nanocrystals as cell-instructive materials. *Biomacromolecules*, 20(10):3819-3830. (citations: 0) (most recent IF: 5.667) https://doi.org/10.1021/acs.biomac.9b00907

Rutgeerts, L.A.J., Soultan, A.H., Subramani, R., Toprakhisar, B., Ramon, H., Paderes, M.C., De Borggraeve, W.M., **Patterson, J.** (2019). Robust scalable synthesis of a bis-urea derivative forming thixotropic and cytocompatible supramolecular hydrogels. Chemical Communications, 55(51):7323-7326. (citations: 4) (most recent IF: 6.164) https://doi.org/10.1039/c9cc02927c

Kudva A.K., Dikina, A.D., Luyten, F.P., Alsberg, E., **Patterson, J.** (2019). Gelatin microspheres releasing transforming growth factor drive in vitro chondrogenesis of human periosteum derived cells in micromass culture. *Acta Biomaterialia*, 90:287-299. (citations: 4) (most recent IF: 6.638) https://doi.org/10.1016/j.actbio.2019.03.039

Van den Broeck, L., Piluso, S., Soultan, A.H., De Volder, M., **Patterson, J.** (2019). Cytocompatible carbon nanotube reinforced polyethylene glycol composite hydrogels for tissue engineering. *Materials Science and Engineering C*, 98:1133-1144. (citations: 5) (most recent IF: 4.959) https://doi.org/10.1016/j.msec.2019.01.020

Soultan, A.H., Verheyen, T., Smet, M., DeBorggraeve, W.M., **Patterson, J.** (2018). Synthesis and peptide functionalization of hyperbranched poly(arylene oxindole) towards versatile biomaterials. *Polymer Chemistry*, 9(20):2775-2784. (citations: 2) (IF publication year: 4.93) (most recent IF: 4.760) https://doi.org/10.1039/c8py00139a

Kudva, A.K., Luyten, F.P., **Patterson, J.** (2018). RGD-functionalized polyethylene glycol hydrogels support proliferation and in vitro chondrogenesis of human periosteum-derived cells. *Journal of Biomedical Materials Research: Part A*, 28(10):33-42. (citations: 9) (IF publication year: 3.08) (most recent IF: 3.221) https://doi.org/10.1002/jbm.a.36208

Patterson, J., Hubbell, J.A. (2011). SPARC-derived protease substrates to enhance the plasmin sensitivity of molecularly engineered PEG hydrogels. *Biomaterials*, 32(5):1301-1310. (citations: 63) (IF publication year: 7.40) (most recent IF: 10.273) https://doi.org/10.1016/j.biomaterials.2010.10.016

Patterson, J., Hubbell, J.A. (2010). Enhanced proteolytic degradation of molecularly engineered PEG hydrogels in response to MMP-1 and MMP-2. *Biomaterials*, 31(30):7836-7845. (citations: 290) (IF publication year: 7.88) (most recent IF: 10.273) https://doi.org/10.1016/j.biomaterials.2010.06.061

Patterson, J., Siew, R., Herring, S., Lin, A.S.P., Guldberg, R., Stayton, P.S. (2010). Hyaluronic acid hydrogels with controlled degradation properties for oriented bone regeneration. *Biomaterials*, 31(26):6772-6781. (citations: 175) (IF publication year: 7.88) (most recent IF: 10.273) https://doi.org/10.1016/j.biomaterials.2010.05.047

West, M., Wang, W., **Patterson, J.**, Mancias, J., Beasley, J., Hecht, M. (1999). De novo amyloid proteins from designed combinatorial libraries. *Proceedings of the National Academy of Sciences of the United States of America*, 96(20):11211-11216. (citations: 274) (IF publication year: 10.26) (most recent IF: 9.580) https://doi.org/10.1073/pnas.96.20.11211

R&D Leadership (10 Funded Projects)

European Commission Horizon 2020: Developing an Artificial Intestine for the sustainable farming of healthy fish (Fish-AI), H2020-FETOPEN-RIA-2018 grant agreement number 828835, Universita Degli Studi di Milano (coordinator), Israel Oceanographic and Limnological Research Limited, Universiteit Gent, BIOFABICS LDA, Norwegian University of Life Sciences, Skretting Aquaculture Research Centre AS. € 2998650 – 2019-2023 (Team member from BIOFABICS)

European Commission Horizon 2020: Induced pluripotent stem cell seeded active osteochondral nanofibrous scaffolds (iP-OSTEO), H2020-MSCA-RISE-2018 grant agreement number 824007, Ustav Experimentalni Mediciny Akademie Ved Ceske Republiky Verejna Vyzkumna Instituce (Coordinator), Inocure SRO, Szechenyi Istvan University, OSPIN GmbH, BIONEER A/S, Lacerta Technologies GmbH, University College London, Hochschule Rein-Waal-HSRW Rhine-Waal University of Applied Sciences, LLS Rowiak LaserLabSolutions GmbH, Corticalis AS, Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V., BIOFABICS LDA, Scinus Cell Expansion BV, Institute of Fundamental Technological Research, Polish Academy of Sciences. € 1099400 – 2019-2023 (Team member from BIOFABICS)

European Commission Horizon 2020: Active organotypic models for nanoparticle toxicological screeing (ActiTOX), H2020-MSCA-RISE-2018 grant agreement number 823981, Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V. (Coordinator), Inocure SRO, Technische Universitaet Wien, Szechenyi Istvan University, OSPIN GmbH, Universitaet Graz, BIONEER A/S, Orthosera GmbH, Ustav Experimentalni Mediciny Akademie Ved Ceske Republiky Verejna Vyzkumna Instituce, BIOFABICS LDA. € 1191400 – 2019-2023 (Team member from BIOFABICS)

Research Foundation Flanders (FWO): Development and fabrication of clinically relevant polymer-based stents for chronic rhinosinusitis, G.0831.17N, Peter Dubruel, Eleonora Ferraris, Jennifer Patterson, Sandra Van Vlierberghe, Thibaut Van Zele (University of Ghent, Free University of Brussels, and KU Leuven). € 561000 – 2017-2020 (Lead PI from KU Leuven)

Fund for Research in Ophthalmology (FRO, Belgium): 3D printed human recombinant collagen scaffolds for corneal tissue engineering: an in vivo study of biocompatibility, Steffi Matthyssen, Eleonora Ferraris, Jennifer Patterson, Marie-José Tassignon, Nadia Zakaria (University of Antwerp and KU Leuven), € 20000 – 2016-2017 (Co-PI)

Fund for Research in Ophthalmology (FRO, Belgium): 3D printed human recombinant collagen scaffolds for corneal tissue engineering: determination of cell-scaffold interactions, Steffi Matthyssen, Eleonora Ferraris, Jennifer Patterson, Nadia Zakaria (University of Antwerp and KU Leuven), € 20000 – 2015-2016 (Co-PI)

KU Leuven Research Fund: Characterization and re-creation of the hematopoietic stem cell (HSC) niche, IDO/13/016, Catherine Verfaillie, Jennifer Patterson, Herman Ramon, Hans Van Oosterwyck, € 501600 – 2014-2018 (Co-PI)

Research Foundation Flanders (FWO): Development of a biomimetic cornea combining additive manufacturing and stem cell technologies, G.0B39.14, Marie-José Tassignon, Eleonora Ferraris, Jennifer Patterson, Nadia Zakaria (University of Antwerp and KU Leuven). € 584000 – 2014-2017 (Lead PI from KU Leuven)

Research Foundation Flanders (FWO): Computational model-informed strategies for the bio-manufacturing of 3D patterned constructs for the treatment of large, non-healing bone defects, VS.056.14N, Hans Van Oosterwyck, Eleonora Ferraris, Bahattin Koç, Jennifer Patterson (KU Leuven and Sabancı University), € 9120 – 2014-2016 (Co-PI)

KU Leuven Research Fund: Controlled spatial patterning of ligand presentation within hydrogels, CREA/13/017, Jennifer Patterson, € 160000 – 2013-2016 (PI)

Synergistic Activities (5)

External Examiner for the University of Limerick (Ireland) master of science in biomedical device materials for the academic years 2015-2016 through 2018-2019

Grant Reviewer for H2020 calls; ATP-Avenir program for CNRS/INSERM in France (2019); Netherlands Ministry of Education, Culture and Science (OCW) (2016); the Agence Nationale de la Recherche (ANR) in France (2014-2017); the Marie Curie COFUND programs WHRI-ACADEMY (2014-2017) and LEaDing Fellows (2018-2019); the KU Leuven research fund (2013-2015); and the Terry Fox Foundation for Cancer Research Project Grants (2013)

Member of the Review Editorial Board of Biomaterials, which is a specialty of *Frontiers in Bioengineering and Biotechnology* and *Frontiers in Materials*, since 2014, and of the Reviewer Board of *Pharmaceutics* and *Materials* since 2019/2020 and reviewer for manuscripts submitted to a number of journals in the areas of biomaterials, drug delivery, and nanotechnology

Active member of Sigma Xi (judge for Virtual Student Scholars Symposium 2020, committee on nominations from 2013-2016), Society of Women Engineers (presently scholarship and award judge, member of women in academia committee), Biomedical Engineering Society (presently member of international affairs subcommittee, abstract reviewer), Society for Biomaterials, TERMIS, and OSA

Lecturer for courses including Host Response to Biomaterials, Biomaterials II, Next Generation Biomaterials at KU Leuven (Belgium) from 2014 to 2017

Mentoring (as supervisor or co-supervisor)

- 5 postdoctoral fellows
- 7 Ph.D. students
- 2 predoctoral students
- 24 master students
- 26 bachelor students