

Anna Puiggalí-Jou

ORCID code: 0000-0001-7822-9807
Scopus Author ID: 57056488300
Email: anna.puiggalijou@hest.ethz.ch
Date of birth: 01/12/1991
Nationality: Spanish
Marital status: Married
Address: Arminstrasse 11, 8050 Zurich, Switzerland



EDUCATION

03/11/2014 – 04/03/2019 PhD in Biomedical Engineering, International Doctorate
Chemical Engineering Department, EEBE, Polytechnic University of Catalonia (UPC), Barcelona, Spain.
Qualification: Summa Cum Laude.
Supervisor: Prof. Carlos Alemán.
Thesis: Biointerfaces based on the combination of synthetic polymers and biomolecules

16/09/2013 – 25/07/2014 MSc in Biomedical Research
Department of Experimental and Health Sciences, Pompeu Fabra University (UPF), Barcelona, Spain.

14/09/2009 – 23/09/2013 Degree in Biochemistry
Department of Biochemistry, University of Barcelona (UB). Barcelona, Spain.

ACADEMIC EXPERIENCE

02/09/2022–... Postdoctoral researcher at ETH Zurich under the supervision of Prof. Marcy Zenobi-Wong.

02/03/2021–... Educational officer of the Young Scientist Forum (YSF) from the European Society of Biomaterials (ESB).

01/09/2020–01/09/2022 MSCA postdoctoral fellowship at ETH Zurich under the supervision of Prof. Marcy Zenobi-Wong.

05/03/2019–01/08/2020 Postdoctoral researcher at UPC under the supervision of Prof. Carlos Alemán.

RESEARCH STAYS

Internships during the PhD thesis:

- Erasmus doctorate at the **Freie Universität of Berlin** (01/04/2018 – 31/07/2018)
Supervisor: Prof. M. Calderon (Department of Organic Chemistry)
- Doctorate internship at the **University of Namur** (01/04/2017 - 30/04/2017)
Supervisor: Prof Eric A. Perpète and Dr Catherine Michaux (Department of Chemistry)
- Erasmus doctorate at the **University of Warsaw** (01/10/2016 - 30/11/2016)
Supervisor: Prof. S. Sek (Biological and Chemical Research Centre)

Internships during the Master degree:

- Master internship at the **University College London** (UCL) (13/01/2014 - 01/07/2014).
Supervisor: Prof. Giuseppe Battaglia (Department of Chemistry)

Internships during the Bachelor's degree:

- Erasmus during the final degree project at the **University College London** (UCL) (01/04/2013 – 30/07/2013).
Supervisor: Prof. Giuseppe Battaglia (Department of Chemistry)

PUBLICATIONS

(* indicates corresponding authors, # indicates equal contribution)

1. **Puiggalí-Jou A**, Hui I, Fernández-Rico C, Zenobi-Wong M*. The space within: How Architected Voids Promote Tissue Formation. Adv. Mater. *In revision*, adma.202507385.
2. Bono F, **Puiggalí-Jou A**, Lucherini L, Cocchi G, Zenobi-Wong M, Amstad E*. Enzyme-induced mineralization of calcium carbonate in 3D printable granular hydrogels. Mater. Today. *In revision*, MATTOD-D-25-00894.

3. Hao L[#], **Puiggalí-Jou A[#]**, Chansoria P, Janiak J, Kunz B, Zenobi-Wong M*. Engineered Flight Matrices for Neural Regeneration: Tunable Scaffolds for Axon Guidance. *Mater. Today Bio.* 2025, 31, 101471.
4. **Puiggalí-Jou A**, Hui I, Baldi L, Frischknecht R, Asadikorayem M, Janiak J, Chansoria P, McCabe MC, Stoddart M, Hansen KC, Christman K, Zenobi-Wong M*. FLIGHT-Assisted Biofabrication of Anisotropic Articular Cartilage based on Decellularized Extracellular Matrix. *Biofabrication*, 2025, 17, 015044.
5. Asadikorayem M, Weber P, Surman F, **Puiggalí-Jou A**, Zenobi-Wong M*. Foreign Body Immune Response to Zwitterionic and Hyaluronic Acid Granular Hydrogels Made with Mechanical Fragmentation. *Adv. Healthcare Mater.* 2024, 2402890.
6. **Puiggalí-Jou A[#]**, Rizzo R[#], Bonato A, Fisch P, Ponta S, Weber DM, Zenobi-Wong M*. FLIGHT Biofabrication Supports Maturation of Articular Cartilage with Anisotropic Properties. *Adv Healthc Mater.* 2023, 13 (12), 2302179.
7. **Puiggalí-Jou A**, Asadikorayem M, Maniura-Weber K, Zenobi-Wong M*. Growth factor-loaded sulfated microislands in granular hydrogels promote hMSCs migration and chondrogenic differentiation. *Acta Biomaterialia*. 2023, 166, 562-571.
8. Tomooka Y, Spothelfer D, **Puiggalí-Jou A**, Tourbier C, Tankus EB, Thieringer F.M., Cattin P.C., Rauter G*, Eugster M*. Minimally invasive in situ bioprinting using tube-based material transfer. *Automatisierungstechnik*, 2023, 71 (7), 562-571.
9. Flégeau K, **Puiggalí-Jou A**, and Zenobi-Wong M*. Cartilage tissue engineering by extrusion bioprinting utilizing porous hyaluronic acid microgel bioinks. *Biofabrication*, 2022 14 (3), 034105.
10. Babeli I[#], **Puiggalí-Jou A[#]**, Roa JJ, Ginebra M-P, Garcia-Torres J*, and Aleman C*. Hybrid conducting alginate-based hydrogel for hydrogen peroxide detection from enzymatic oxidation of lactate. *Int. J. Biol. Macromolecules*. 2022, 193, 1237-1248.
11. Enshaei H, Molina BG, **Puiggalí-Jou A**, Saperas N, Alemán C*. Polypeptide hydrogel loaded with conducting polymer nanoparticles as electroresponsive delivery system of small hydrophobic drugs. *Eur. Polym. J.* 2022, 173, 111199.
12. **Puiggalí-Jou A***, Babeli I, Roa J.J., Zoppe J.O., Garcia-Amorós J., Ginebra M-P, Aleman C*, and Garcia-Torres J*. Remote spatiotemporal control of a magnetic and electroconductive hydrogel network via magnetic fields for soft electronic applications. *ACS Appl. Mater. Interfaces* 2021, 13, 36, 42486–42501.
13. **Puiggalí-Jou A***, Ordoño J, del Valle LJ, Perez-Amodio S, Engel E, Aleman C*. Tuning multilayered polymeric self-standing films for controlled release of L-lactate by electrical stimulation. *JCR* 2021, 330:669-683.
14. Moreira VB, **Puiggalí-Jou A**, Jimenez-Pique E, Aleman C, Meneguzzi A, Armelin E*. Green nanocoatings based on the deposition of zirconium oxide : the role of the substrate. *Materials* 2021. doi.org/10.3390/ma14041043.
15. **Puiggalí-Jou A***, Wedepohl S, Theune LE, Aleman C*, Calderon M*. Effect of conducting/thermoresponsive polymer ratio on multiskin nanogels. *Mat Sci and Eng C.* 2021, 111598.
16. Fontana-Escartin A, **Puiggalí-Jou A**, Lanzalaco S, Bertran O, Aleman C*. Manufactured flexible electrodes for dopamine detection: integration of conducting polymer in 3D-Printed polylactic acid. *Adv Eng Mat.* 2021, 2100002.
17. **Puiggalí-Jou A**, Moline BG, Lopes-Rodrigues M, Michaux C, Perpète EA, Zanuy D, Alemán C*. Self-standing, conducting and capacitive biomimetic hybrid nanomembranes for selective molecular ion separation. *Phys. Chem. Chem. Phys.*, 2021, 23, 16147-16164.
18. Enshai H, **Puiggalí-Jou A***, Saperas N*, Alemán C*. Conducting polymer nanoparticles for a voltage-controlled release of pharmacological chaperones. *Soft Matter*, 2021, 17, 3314-3321.
19. Babeli I, Ruano G, **Puiggalí-Jou A**, Ginebra M-P, Aleman C*, Garcia-Torres J*. Self-healable and eco-friendly hydrogels for flexible supercapacitors. *Adv Sustainable Syst.* 2021, 2000273.
20. Zanuy D, **Puiggalí-Jou A**, Conflitti P, Bocchinfuso G, Palleschi A, Aleman C*. Aggregation propensity of therapeutic fibrin-homing pentapeptides: insights from experiments and molecular dynamics simulations. *Soft Matter*. 2020, 16: 10169-10179.
21. **Puiggalí-Jou A**, Cazorla E, Ruano G, Babeli I, Ginebra M-P, Garcia-Torres J, Aleman C*. Electroresponsive alginate-based hydrogels for controlled release of hydrophobic drugs. *ACS Biomater. Sci. Eng.* 2020, 6: 6228-6240.
22. Enshai H, **Puiggalí-Jou A***, del Valle LJ, Saperas N*, Alemán C*. Nanotheranostic interface based on antibiotic-loaded conducting polymer nanoparticles for real-time monitoring of bacterial growth inhibition. *Adv Healthc Mater.* 2020, 2001636.
23. **Puiggalí-Jou A***, del Valle LJ, Alemán C*. Encapsulation and storage of therapeutic fibrin-homing peptides using conducting polymer nanoparticles for programmed release by electrical stimulation. *ACS Biomater. Sci. Eng.* 2020, 6: 2135–2145.

24. **Puiggali-Jou A***, del Valle LJ, Alemán C*. Cell responses to electrical pulse stimulation for anticancer drug release. *Materials (Basel)*. 2019; 12:1-15.
25. **Puiggali-Jou A***, del Valle LJ, Alemán C*. Drug delivery systems based on intrinsically conducting polymers. *Journal of Controlled Release*. 2019; 309: 244-264.
26. **Puiggali-Jou A***, del Valle LJ, Alemán C*. Biomimetic hybrid membranes: incorporation of transport proteins/peptides into polymer supports. *Soft Matter*. 2019, 15(13), 2722–2736.
27. Molina BG, Cuesta S, **Puiggali-Jou A**, del Valle LJ, Armelin E, Alemán C*. Perforated polyester nanomembranes as templates of electroactive and robust free-standing films. *Eur Polym J*. 2019; 114:213-222. doi:10.1016/j.eurpolymj.2019.02.038.
28. **Puiggali-Jou A**, Cejudo A, del Valle LJ, Alemán C*. Smart drug delivery from electrospun fibers through electro-responsive polymeric nanoparticles. *ACS Appl Bio Mater*. 2018;1(5):1594-1605.
29. **Puiggali-Jou A**, Pawlowski J, del Valle LJ, Perpète EA, Sek S, Alemán C*. Properties of omp2a-based supported lipid bilayers: comparison with polymeric bioinspired membranes. *ACS Omega*. 2018; 3: 9003-9019.
30. Lopes-Rodrigues M, **Puiggali-Jou A**, Martí-Balleste D, del Valle LJ, Michaux C, Perpète EA, Alemán C*. Thermomechanical response of a representative porin for biomimetics. *ACS Omega*. 2018; 3: 7856-7867.
31. **Puiggali-Jou A**, Micheletti P, Estrany F, del Valle LJ, Alemán C*. Electrostimulated Release of Neutral Drugs from Polythiophene Nanoparticles: Smart Regulation of Drug-Polymer Interactions. *Adv Healthc Mater*. 2017;6(18):1-11.
32. **Puiggali-Jou A**, del Valle LJ, Alemán C, Pérez-Madrugal MM*. Weighing biointeractions between fibrin(ogen) and clot-binding peptides using microcantilever sensors. *J Pept Sci*. 2017;23(2):162-171.
33. **Puiggali-Jou A**, Pérez-Madrugal MM, del Valle LJ, et al. Confinement of a β -barrel protein in nanoporated free-standing nanomembranes for ion transport. *Nanoscale*. 2016;8(38):16922-16935.
34. **Puiggali-Jou A**, del Valle LJ, Armelin E, Alemán C*. Fibrin association at hybrid biointerfaces made of clot-binding peptides and polythiophene. *Macromol Biosci*. 2016.
35. **Puiggali-Jou A**, Medina J, Del Valle LJ, Alemán C*. Nanoperforations in poly(lactic acid) free-standing nanomembranes to promote interactions with cell filopodia. *Eur Polym J*. 2016;75:552-564.

Google scholar profile:

https://scholar.google.com/citations?hl=es&user=Q1PvTI4AAAAJ&view_op=list_works&sortby=pubdate

PATENTS AND INVENTION DISCLOSURES

1. Zenobi-Wong M., **Puiggali-Jou A.**, Chansoria P., Liu H. In-situ filamented light (FLight) biofabrication of anisotropic tissues and grafts. (ETH invention disclosure 2022-023; Patent filing under progress)

CONGRESS

Poster presentations

1. **Puiggali-Jou A**, Asadikorayem M, Maniura-Weber K, Zenobi-Wong M. Sulfated Micro-Islands in Granular Hydrogels Promote Endogenous Cell Homing into Cartilage Defects. ESB2022, Bordeaux (France), [04.09.2022-08.09.2022](#).
2. **Puiggali-Jou A**, Lopes-Rodrigues M, Pérez-Madrugal MM, Martí-Balleste D, del Valle LJ, Michaux C, Perpète E A, Alemán C. Microcantilevers operating at the dynamic and static mode for weighting proteins. 6th Iberian Peptide Meeting 4th ChemBio Group Meeting, Barcelona (Spain), [05.02.2018-07.02.2018](#).
3. **Puiggali-Jou A**, del Valle LJ, Armelin E, Alemán C. Fibrin association at hybrid biointerfaces made of clot-binding peptides and polythiophene. II Peptide Materials for Biomedicine and Nanotechnology 2016 (II Pepmat 2016), Barcelon (Spain), [14.05.2016-16.05.2016](#).
4. **Puiggali-Jou A**, Medina J, Estrany F, Del Valle LJ, Alemán C. Self-supporting ultrathin membranes with tuneable pore size by means of lateral phase separation. European Polymer Congress 2015, Dresden (Germany), [21.06.2015-26.06.2015](#).

Oral presentations

1. **Puiggali-Jou A**, Hui I, Baldi L, Frischknecht R, Asadikorayem M, Janiak J, Chansoria P, McCabe MC, Stoddart M, Hansen KC, Christman K, Zenobi-Wong M. FLight Bioprinting of Decellularized Extracellular Matrix for Cartilage Tissue Engineering. China-Europe symposium on biomaterials (CESB) 2024, Nuremberg (Germany), [15.09.2024-18.09.2024](#).
2. **Puiggali-Jou A**, Hui I, Baldi L, Frischknecht R, Asadikorayem M, Janiak J, Chansoria P, McCabe MC, Stoddart M, Hansen KC, Christman K, Zenobi-Wong M. FLight Bioprinting of Decellularized Extracellular Matrix for Cartilage Tissue Engineering. GRC Biointerface Science 2024, Lucca (Italy), [16.06.2024-21.06.2024](#).
3. **Puiggali-Jou A**, Rizzo R, Bonato A, Fisch P., Zenobi-Wong M. FLight Biofabrication of Anisotropic Articular Cartilage to provide Enhanced Mechanical Properties. ESB2023, Davos (Switzerland), [04.09.2023-08.09.2023](#).
4. **Puiggali-Jou A**, Asadikorayem M, Maniura-Weber K, Zenobi-Wong M. Sulfated Micro-Islands in Granular Hydrogels Promote Endogenous Cartilage Repair. Biointerfaces International Conference (BIC), Zurich (Switzerland), [13.09.2022-15.09.2022](#).
5. **Puiggali-Jou A**, Wedepohl S, Theune LE, Alemán C, Calderón M. The influence of conducting polymer semi-interpenetration on thermoresponsive nanogels as switchable drug releasing photothermal and sensing agents. Virtual International Symposium on Nano/Microgels, [24.04.2020](#).

Chair

1. Engineering Hydrogels to Mimic Tissue Architecture - Mark Skylar-Scott. ESB2023, Davos (Switzerland), [04.09.2023-08.09.2023](#).

Workshops

- 1 YSF pre-conference workshop. CESB2024, Nuremberg (Germany), [15.09.2024](#).
- 2 YSF pre-conference workshop. ESB2023, Davos (Switzerland), [04.09.2023](#).
- 3 YSF pre-conference workshop. ESB2022, Bordeaux (France), [04.09.2022](#).

INVITED TALKS

1. "Sulfated microislands in granular hydrogels promote articular cartilage repair" Swiss Federal Laboratories for Materials Science and Technology (EMPA), Sant Gallen, CH
2. "Osteochondral tissue engineering" Center for Applied Biotechnology and Molecular Medicine (CABMM), University of Zurich, Zurich, CH

TEACHING AND MENTORING EXPERIENCE

Teaching

- Coordinator and lecturer for **Practical Methods in Biofabrication** (ETHZ, Switzerland) during the Spring semester of 2023.
- Delivering practical sessions for the courses:
 - **Practical Methods in Biofabrication** (ETHZ, Switzerland) during the Spring semester from 2020 to 2024: groups of up to 20 students, 16 h per semester.
 - **Practical Methods in Tissue Engineering** (ETHZ, Switzerland) during Autumn from 2020 to 2023: groups of up to 20 students, 8 h per semester.
 - **Advanced Materials in Physical Engineering** (ETSEIB, Polytechnic University of Catalonia, Spain) from 2014 to 2018: groups of up to 20 students, 12 h per semester.

PhDs Co-supervised with Prof. Marcy Zenobi-Wong

Student	Year	Centre	Title
Lucrezia Baldi	2024-...	ETH	Nuclear deformation in FLight matrices
Annalena Mayer	2023-...	ETH	Zwitterionic Polymer-Immunocytokine Conjugates as Novel Treatment of Osteoarthritis

Mentoring

Student	Year	Course	Centre	Title
Pietro Fumagalli	2025	Semester project	ETH	Investigation of biocompatibility and cellular localization of zwitterionic polymer-protein conjugates

Maya Krell	2024	Master thesis	ETH	Developing synthetic microfiber bundles through filamented light for tendon repair
Marielle Airoidi	2024	Semester project	ETH	Engineering the calcified cartilage layer of the osteochondral unit
Siyi Chen	2024	Master thesis	ETH	Genetically engineered MSCs for cartilage tissue engineering
Isabel Hui	2024	Master thesis	ETH	FLight Biofabrication of Decellularized Extracellular Matrix for Articular Cartilage Tissue Engineering
Andrea Santoro	2023	Semester project	ETH	Engineering Calcified Articular Cartilage for Osteochondral Plugs in Osteoarthritis Treatment
Rea Frischknecht	2023	Semester project	ETH	Optimization of bioinks for using flight technology on cartilage tissue engineering
Lucrezia Baldi	2023	Semester project	ETH	Optimisation of dECM bioink for cartilage engineering using FLight technology
Lucrezia Baldi	2022	Semester project	ETH	Sulfated microgels for delivering platelet rich plasma
Daniel Gschwend	2022	Semester project	ETH	Developing a Micropatterning Technology for Co-culture Studies
Ismael Babeli	2020	Master thesis	UPC	Smart hydrogels for pressure and chemical sensing
Eric Cazorla	2019	Bachelor thesis	UPC	Supercapacitors coupled to biomedical devices
Didac Martí	2018	Bachelor thesis	UPC	Thermomechanical response of representative porin for biomimetics
Alberto Cejudo	2017	Bachelor thesis	UPC	Integration of nanoparticles for drug release by electrostimulation in biodegradable polymer scaffolds
Paolo Micheletti	2016	Bachelor thesis	UPC	Drug incorporation into electro-active nanoparticles
Judith Medina	2015	Bachelor thesis	UPC	Self-supporting ultrathin membranes with tunable pore size by phase separation.

RESEARCH GRANTS

Awarded

<i>Title</i>	<i>Year</i>	<i>Role</i>	<i>Application Centre</i>	<i>Issuing Body</i>	<i>Amount</i>
AYUDAS RAMÓN Y CAJAL	2025	PI	IBEC	Agencia Estatal de Investigación	298,004 (EUR)
Luminate- Lighting The Way Towards In Situ Osteochondral Regeneration Through Microextrusion And Filamented Light Bioprinting	2024	ETH researcher	Universita di Pisa	EU HORIZON	8,825,873.75 (EUR)
Bioengineering Native Osteochondral Architecture: From In Vitro Models To Biological Joint Resurfacing (10.000.207)	2024	ETH researcher	ETH	Swiss National Foundation (SNF)	2,097,349 (CHF)
Osteochondral Repair And Regeneration – Tackling The Subchondral Bone-Cartilage Junction	2023	ETH researcher	Vetsuisse Zürich	Call for interdisciplinary research projects Vetsuisse Zürich	49,166 (CHF)
Evaluation Of Novel Targeting Strategies To Deliver Engineered Protein Therapeutics In Relevant In Vitro And In Vivo Osteoarthritis Models (104.824 Ip-Ls)	2023	ETH manager	ETH	Innosuisse-swiss innovation agency	694,725.10 (CHF)
Supaflex: Microalgal Polysaccharides As A Novel Treatment For Osteoarthritis (337078)	2022	ETH manager	MICROA AS	User-controlled Innovation Arena Norwegian Council	5,300,000 (NOK)
Aptogel: A 3d Platform For Mesenchymal Stem Cell Homing (885797)	2020	MSCA-Individual fellowship	ETH	EU HORIZON	191,149.44 (EUR)

AWARDS

2025 Woman Interactive Award finalist

Application centre: Leibniz institute

2020 Extraordinary Doctorate Award (2018-2019 Promotion)

Application centre: Universitat Politècnica de Catalunya

Issuing body: Universitat Politècnica de Catalunya

2018 Erasmus Mobility scholarship

Application centre: Freie Universität of Berlin, Germany

Issuing body: Education, Audiovisual and Culture Executive Agency (EACEA), EU

2016 Erasmus Mobility scholarship

Application centre: University of Warsaw, Poland

Issuing body: Education, Audiovisual and Culture Executive Agency (EACEA), EU

2013 Erasmus Mobility scholarship

Application centre: University College of London, UK

Issuing body: Education, Audiovisual and Culture Executive Agency (EACEA), EU

2009 Council for Research and Technological Innovation (CIRIT) award for research project

Issuing body: Generalitat de Catalunya (Catalonian Government)

2009 Enginycat award for research project

Issuing body: Universitat Politècnica de Catalunya

REFERENCES

1. **Prof. Dr. Marcy Zenobi-Wong**, Professor, Department of Health Sciences and Technology, ETH Zurich (email: marcy.zenobi@hest.ethz.ch, Ph. No. +41 796334858)
2. **Prof. Dr. Carlos Aleman**, Professor, Chemical Engineering Department, EEBE, Polytechnic University of Catalonia (email: carlos.aleman@upc.edu, Ph. No. +34 934010883)
3. **Prof. Dr. Marcelo Calderon**, Professor, POLYMAT, Applied Chemistry Department, University of the Basque Country (email: marcelo.calderon@polymat.eu, Ph. No. +34 94301 8182)
4. **Prof. Dr. Katharina Maniura**, Adjunct Professor, Department of Health Sciences and Technology, ETH Zurich and Head Biointerfaces, EMPA (email: Katharina.Maniura@empa.ch, Ph. No. +41 58 765 7447)