

CURRICULUM VITAE

PERSONAL DATA

Name Prof. Dr.-Ing. Laura De Laporte
Date/Place of Birth 03.12.1980, Gent, Belgium
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WORK EXPERIENCE

11/2024 – current W3 Professor, Chair ‘Macromolecular Materials for Medicine’, Chemistry Department RWTH, joined appointment with DWI and Institute of Applied Medical Engineering, UKA RWTH Aachen, DE
09/2018 – 10/2024 W2 Professor, Teaching and Research Area ‘Advanced Materials for Biomedicine’, Chemistry Department RWTH, joined appointment with DWI and Institute of Applied Medical Engineering, UKA RWTH Aachen, DE
03/2019 – current Executive Board Member (since 2024) and Fellow of the Max Planck School – Matter to Life
10/2013 – 08/2018 Group leader at DWI-Leibniz Institute for Interactive Materials, Aachen, DE
07/2009 – 09/2012 Postdoctoral Research, Laboratory of Prof. Jeffrey Hubbell, Life Sciences – Ecole Polytechnique Fédérale de Lausanne, Switzerland
09/2003 – 08/2004 Research assistant, Laboratory of Prof. Lonnie Shea, Department of Chemical and Biological Engineering – Northwestern University (NU), Evanston, US

EDUCATION

10/2017 Privatdozentin RWTH - Chemie
09/2004 – 06/2009 PhD, Department of Chemical and Biological Engineering – NU, Evanston, US; *Multiple channel bridges with the ability for DNA and protein delivery for spinal cord regeneration* Promoter: Prof. Lonnie Shea - GPA: 4.0/4.0
09/1998 – 06/2003 Bachelor and Masters in Chemical Engineering – Ghent University, BE; *Great Distinction*

BOARDS

2022 – current Steering Committee, GKR2145 Mechanobiology
2020 – current Scientific Advisory Board, Advanced Healthcare Materials
2021 – current ENLIGHT Advisory Board Member, Utrecht University
2021 – 2024 Board of Directors, International Society for Biofabrication ISBF
2020 – 2021 Associated Editor, ACS Advanced Materials and Interfaces

GRANTS

11/2026 – 05/2031 DFG RTG Emerge: Adaptive soft matter by programming colloidal gels with biological building blocks, Project B3: Design and production of bioactive hollow microgels for tissue regeneration (366,400 €)
11/2026 – 10/2030 DFG CRU1769 Polymer Mechanochemistry, Project A3: Tailoring the mechanics and mechanochemistry of hollow polymeric micromaterials (366,400 €)
11/2025 – 10/2027 IGF_2024-01791 Gelsert: soft membrane inserts for cell culture (274,370 €)
11/2025 – 10/2029 Development of an *in vitro* hair follicle model based on human primary cells or iPSC in combination with advanced hydrogels for assessment of hair growth actives (450,000 €)

11/2025 – 10/2029	DFG: CRU5011: Integrating emerging methods to advance translational kidney research (InteraKD), P1: Advanced ex vivo human kidney disease models using induced pluripotent stem cells (270,130 €)
01/2025 – 12/2029	EU NEOLIVER 101191649: Automated generation of dense, functional and perfusable bioprinted liver constructs for transplantation (1,062,172 €)
10/2024 – 09/2028	Leibniz ScienceCampus „Sonopharmacology - Activation of drugs by ultrasound” (ACTISONO): Improved liver regeneration after surgery enabled by ultrasound (98,000 €)
10/2024 – 09/2028	DFG SPP2451 ‘Engineered living Materials’: P12: ProbioGel as Adaptive Living Skin and Wound Therapeutics (448,421 €)
10/2024 – 09/2027	DFG: RTG2375: Tumor-Targeted Drug Delivery, P7: Development of a molecular combined chemoimmunotherapy for treatment of hepatocellular carcinoma (278,420 €)
01/2024 – 06/2028	DFG: RTG2415: Mechanobiology in Epithelial 3D Tissue Constructs (ME3T) 2 nd funding period, Project D1: Pre-programming anisometric microgels to orthogonally study the effect of mechanical signals on epithelia in 3D tissue models (278,420 €)
09/2024 – 03/2026	EU: European Research Council Proof of Concept (POC 101150675) AnisoPlate: High-throughput production of anisotropic 3D human tissue models (150,000 €)
08/2023 – 07/2024	ERS RWTH Seed fund: Conductive phantom cell as sensor for retinal organoids, with Jacopo di Russo and Francesca Santoro (73,165 €)
01/2023 – 12/2026	EU Marie Skłodowska-Curie Doctoral Network 101073374 ReWire: Technology-driven combinatorial therapy to rewire the spinal cord after injury (781,617 €)
10/2022 – 03/2029	EU ERC CoG 101043656 Heartbeat: 3D-assembly of interactive microgels to grow in vitro vascularized, structured, and beating human cardiac tissues in high-throughput (2,969,219 €)
06/2022 – 05/2026	SAW Transfer Leibniz 111/2021 with IPF and INM: <i>µTissuefab</i> : Multiphasic hydrogels for high throughput human in vitro tissue and disease models, with Prof. Carsten Werner, IPF, and Prof. Arancha del Campo, INM (333,301 €)
01/2022 – 12/2026	Werner Siemens Foundation: TriggerINK: 4D in wound printing for functional tissue repair (9,921,562 € total budget, coordinator of joined grant with Prof. Andreas Herrmann, Prof. Stefan Hecht, and Prof. Matthias Wessling)
01/2022 – 07/2024	IGF: Hydrosprin: Production process for cell fiber-based meat substitutes (249,371 €)
10/2021 – 09/2027	New Frontiers in Research Funds (NFRF) Transformations: Mend the Gap: A transformative biomaterials platform for spinal cord repair (1,985,000 CAD)
08/2021 – 07/2024	DFG: Light responsive hydrogels to understand mechanotransduction in cardiac infarctions and muscular dystrophy (230,050 €)
08/2021 – 07/2022	ERS RWTH Seed fund: Cell-mimicking Microgels to Model Retinal Epithelium Ageing with Dr. Jacopo di Russo (20,300 €)
08/2021 – 02/2023	EU: European Research Council Proof of Concept (POC) BioArchitecture (150,000 €)
07/2021 – 06/2024	DFG: CRU5011: Integrating emerging methods to advance translational kidney research (InteraKD), P1: Development of high-throughput platforms for human kidney disease modeling (217,840 €)
09/2020 – 08/2023	DFG: Rapid prototyped microfluidic systems for synthesizing and screening of microgel capsules as growth factor delivery systems for angiogenesis (199,650 €)
07/2020 – 06/2024	DFG: CRC985 Functional microgels and microgel systems B5: Anisometric microgels to construct 3D responsive macroporous matrices to direct and mechanically trigger cells (334,800 €)
07/2020 – 06/2024	DFG: CRC985 Functional microgels and microgel systems C9: Gene regulation enabled by ferro-microgels (334,800 €)

07/2020 – 10/2022	IGF: Apartex: Electrospun bi-layer anti-adhesion hydrogel fiber mat to prevent post-operative adhesion (236,190 €)
01/2020 – 12/2022	EU: Research and Innovation SC1-BHC-07-2019 OrganTrans (532,725 €)
01/2020 – 12/2021	ERS Prep Fund Project – Life Science: Magnetic field-assisted bioprinting for the fabrication of three-dimensional <i>in vitro</i> tissue models (195,000 €)
10/2020 – 12/2021	ERS RWTH Seed fund: Casein microparticles for sustained drug delivery in regenerative materials with Prof. Twan Lammers and Prof. Ronald Gebhardt (10,800 €)
11/2019 – 10/2020	ERS RWTH Seed fund: Actuating hydrogel to mechanically direct stem cell fate, with Sabine Neuss-Stein (67,200 €)
08/2019 – 12/2020	EU: European Research Council Proof of Concept (POC 842452) PeriGO: Peripheral nerve Gel-based Orientation (150,000 €)
07/2019 – 12/2023	DFG: RTG2415: Mechanobiology in Epithelial 3D Tissue Constructs (ME3T), Project D1: Natural and synthetic hybrid hydrogels to study the effect of mechanical anisotropy on cell behavior and guidance (235,000 €)
06/2018 – 05/2023	SAW Leibniz-Wettbewerb: Professorinnenprogramm (1,667,843 €)
06/2018 – 05/2021	Abgel: Development of organspacer to reduce side effects of radiation therapy during prostate cancer (Leitmarkt Agentur NRW: Neue Werkstoffe) (380,831 €)
03/2015 – 02/2021	EU: European Research Council (ERC) Starting Grant ANISOGEL, 637853 (1,435,396 €)
06/2016 – 05/2020	DFG: CRC985 Functional microgels and microgel systems, B5: Continuous fabrication of rod-shaped microgels to investigate their structural assembly (253,300 €)
01/2015 – 12/2018	EU: Marie Skłodowska-Curie Innovative Training Networks BIOGEL, 642687, Engineering responsive and biomimetic hydrogels for biomedical therapeutic and diagnostic applications (747,650 €, part for my research group)
07/2015 – 11/2018	DFG: Nachwuchsakademie MatWerk (350,500 €)
01/2016 – 12/2016	ERS RWTH Seed fund: Biofunctional hydrogel systems fostering stem cell derived peripheral neurons to study chronic pain disease, with Prof. Angelika Lampert (27,500 €)
11/2015 – 05/2017	RWTH: Umbrella project in collaboration with Prof. Avi Schroeder, Technion University, Israel (15,000 €)
04/2014 – 05/2016	DFG: CRC985 Functional microgels and microgel systems, ramp-up project (51,000 €)

PUBLICATIONS *Authors contributed equally. [§]Co-corresponding authors.

1. Klasen L*, Bastard C*, Mork M, Romahn G, Gerardo-Nava JL, **De Laporte L**. Differentiation and maturation of iPSC-derived motor and sensory neurospheres using biomodified PEG-based microgels. *BioRxiv* 2026 DOI: 10.64898/2026.08.19.745683.
2. Meyer A, Omidinia-Anarkoli A, Harmeth M, Graeve J, Rengel K, Keskin M, Nasehi R, Fusenig M, Dennison N, Hülsmann T, Haraszti T, Freudenberg U, Werner C, **De Laporte L**. Fabrication of Short Polymeric μ Fibers as Building Blocks for Anisotropic High-Throughput Compatible 3D Tissue Models. *BioRxiv* 2025 DOI: 10.64898/2025.12.09.692980.
3. Klasen L*, Mork M*, Nasehi R, Krishnamurthy VT, Zeevaert K, Babendreyer A, Di Russo J, Wagner W, **De Laporte L**. Microgels enable iPSCs to assemble, expand, and differentiate into organoids – from sizable to high throughput. *Advanced Materials* 2026, e75116.
4. Braun M, Schneider T, Koynov K, Driehaus-Ortiz L, Foerch L, Schuler M, Wagner M, Synatschke C, **De Laporte L**, Ng D, Gieß S, Régner-Vigouroux A, Weil T. Cell-derived lactate triggers local hydrogelation and phenotype remodeling. *Nature Comm.* 2026,17: 10279.
5. Oloumi Yazdi Y, Bennet T, Yung A, Bale K, Pieters A, Liubchak I, Meyer AA, Caffrey TM, Reinsberg S, **De Laporte L**, Madden JDW, Cheung KC. Effects of MRI on an injectable hydrogel with magnetically alignable microstructures. *Scientific Reports* 2026, Accepted.

6. Mork M, Möhl N, Romahn G, Klasen L, Bergerbit C, **De Laporte L**. Upscaling the fabrication of rod-shaped microgels: a microfluidic method combining step-emulsification with consecutive droplet confinement in parallelized microchannels. *Advanced Materials* 2026, e74822.
7. Barmin R, Saraolu SA, Gumerov RA, Li Y, Moosavifar M, Köhler Jens, Pohl M, Bastard C, Rütten S, **De Laporte L**, Landfester K, Potemkin I, Kiessling F, Lammers T, Molto Pallares R. Green surfactants reveal mechanistic principles governing polymeric microbubble formation and function. *Green Chemistry* 2026, 28: 14515.
8. Klasen L, Nasehi R, Selzener L, **De Laporte L**. Biomaterials in organoid research: Current state and future directions. *Frontiers in Bioengineering and Biotechnology* 2026, 14: 1895558.
9. Anand R, Lütticken R, **De Laporte L**, Herrmann A*, Heine E*. An optimized CRISPR/Cas9-based genome editing platform enhances bacteriocin production in *Lactiplantibacillus plantarum*. *Journal of Biological Engineering* 2026, 20: 121.
10. Kamp J, Suturin AC, Garrido CA, Tong X, Xu J, Kops N, Müller L, Hülsmann T, Klasen L, Haraszti L, van Osch GJVM, **De Laporte L**. Structural guidance in 3D microgel-in-hydrogel systems to improve chondrogenesis. *Adv. Healthc. Mat.* 2026, 15: e71393.
11. Buzio M, Gini M, Schneider TC, Stajkovic N, Ingebrandt S, **De Laporte L**, Offenhäusser A, Criscuolo V[§], Santoro F[§]. 3D micropatterning of PEDOT:PSS/Gelatin conductive hydrogels via two-photon lithography for soft bioelectronics. *npj Flexible Electronics* 2026, 10: 19.
12. Bulut S, Bissing T, Lile T, Küttner H, Günther D, Bergerbit C, Demco DE, **De Laporte L**, Pich A. Oxygen-inhibition driven compartmentalization of dextran microgels: towards fusible colloidal biomaterial inks for 3D printing. *Adv. Mat.* 2026, 38: e19972.
13. Reul R, Bergerbit C, Scarlat I, Piskova T, Krishnamurthy VT, Kozyrina A, Lok Sze Yam S, **De Laporte L**, Di Russo J. Photodegradable hydrogels for on-demand modeling of age-related spatiotemporal ECM deformation. *Small* 2026, 22: e09246.
14. Bastard C*, Pietryszek P*, Uplegger H, Mork M, Gerardo Nava J L, Haraszti T, **De Laporte L**. Synergistic aligned neuronal and vascular growth inside 3D-PEG-Anisogels utilizing a triple-culture. *Materials Today Bio* 2025, 36: 102737.
15. Karimi N, Moosavifar M, Barmin R, Appold L, Bastard C, Rutten S, Assasa MHDN, Tani A, Domenici F, Paradossi G, **De Laporte L**, Padilla F, Kiessling F, Lammers T, Pallares R. Size-dependent nonlinear acoustic responses and stable cavitation of polymeric microbubbles. *ACS Biomaterials Science & Engineering* 2025, 12: 161.
16. Barmin R, Moosavifar M, Rama E, Blöck J, Rix A, Petrovskii VS, Gumerov RA, Köhler J, Pohl M, Bastard C, Rütten S, Charlton L, Khiêm VN, Domenici F, Lisson T, Savina E, Zhang R, Baier J, Koletnik S, Koutsos V, Itskov M, Paradossi G, Schmitz G, Vermonden T, **De Laporte L**, Göstl R, Herrmann A, Potemkin II, Kiessling F, Lammers T, Pallares RM. Microbubble shell stiffness engineering enhances ultrasound imaging, drug delivery, and sonoporation. *Adv. Mat.* 2025, 38: e07655.
17. Möhl N, Babu S, Bonhomme C, Nasehi R, Mork M, Haraszti T, Wittmann G, Wu B, Vinokur R, Kim K, Kramann R, Guck J, **De Laporte L**. Exploring compartmentalized jet polymerization for novel rod-shaped microgels and their potential in tissue engineering applications. *Biomaterials* 2025, 328: 123866.
18. Möhl N*, Bouwens D*, Abele J, Hans A, Tópic T, Günther D, Jansen J, Kramann K[§], **De Laporte L**[§]. Development of a synthetic 3D platform for compartmentalized kidney in vitro disease modeling. *Adv. Healthc. Mat.* 2025, 15: e03287.
19. Cardoso B, Moosavifar M, Barmin R, Zhang R, Bastard C, Köhler J, Rutten S, Pohl M, Thoröe-Boveleth S, Kraus T, **De Laporte L**, Kiessling K, Lammers T, Pallares R. Enhancing polymeric microbubble monodispersity and acoustic responses through selective reagent sourcing. *Molecular Pharmaceutics* 2025, 22: 7068.
20. Chan J, Rubio JG, Lancaster-Jones OO, Verma Y, Büchter C, Jockenhoevel S, **De Laporte L**, Trilling M, Thiebes AL, Duarte Campos D. Integrating three-dimensional printing and bioprinting technologies to develop a stretchable in vitro model of the human airway. *Bio-des. Manuf.* 2025, 8: 595-606.
21. Spiewok S, Jansen F, Han J, Lamla M, von Delius M, Trautwein C, **De Laporte L**, Kuehne AJC. Highly loaded reactive oxygen species-responsive theranostic Lenvatinib-prodrug nanoparticles produced by dispersion polymerization. *Adv. Nanobiomed Res.* 2025, 5: 2400187.

22. Bastard C, Schulte JC, Asaduzzaman M, Hohn C, Kittel Y, **De Laporte L**, Gebhardt R. Casein microparticles filled with cellulase to enzymatically degrade nanocellulose for cell growth. *Biomater Sci.* 2025, 13: 2435-43.
23. Günther D, Bergerbit C, Marsee A, Vedaraman S, Pueyo-Moliner A, Bastard C, Eelen G, Gerardo Nava JL, Dewerschin M, Carmeliet P, Kramann R, Schneeberger K, Spee B, **De Laporte L**. Synergizing bioprinting and 3D cell culture to enhance tissue formation in printed synthetic constructs. *Biofabrication* 2025, 17: 025015.
24. Bouwens D, Kabgani N, Bergerbit C, Kim H, Ziegler S, Ijaz S, Abdallah A, Haraszti T, Maryam S, Omidinia-Anarkoli A, **De Laporte L**, Hayat S, Jansen J, Kramann R. A bioprinted and scalable model of human tubulo-interstitial kidney fibrosis. *Biomaterials.* 2025, 316: 123009.
25. Steinbeck L, Paul R, Litke J, Karkoszka I, Wiese GP, Linkhorst J, **De Laporte L**, Wessling M. Hierarchically structured and tunable hydrogel patches: design, characterization and application. *Small* 2024, 21: e2407311.
26. Hoeft K, Koch L, Ziegler S, Zhang L, Luetke S, Tanzer MC, Mohanta D, Schumacher D, Schreibing F, Long Q, Kim H, Klinkhammer BM, Schikarski C, Maryam S, Baens M, Hermann J, Krieg S, Peisker F, **De Laporte L**, Schaefer GJ, Menzel S, Jankowski J, Humphreys BD, Wahida A, Schneider RK, Versele M, Boor P, Mann M, Sengle G, Hayat S, Kramann R. ADAMTS12 promotes fibrosis by restructuring extracellular matrix to enable activation of injury-responsive fibroblasts. *J Clin Invest.* 2024, 134: e170246.
27. Rommel D, Häßel B, Pietryszek P, Mork M, Jung O, Emondts M, Norkin N, Doolaar IC, Kittel Y, Yazdani G, Anarkoli AO, Schweizerhof S, Kim K, Mourran A, Möller M, Guck J, **De Laporte L**. Thermally assisted microfluidics to produce chemically equivalent microgels with tunable network morphologies. *Angew Chem Int Ed Engl.* 2024, e202411772.
28. Morozov JM, Quilis NJ, Fossati S, **De Laporte L**, Gusenbauer C, Weber A, Toca-Herrera JL, Wiesner F, Jonas U, Dostalek J. Plasmon-enhanced multiphoton polymer crosslinking for selective modification of plasmonic hotspots. *J. Phys. Chem. C* 2024, 128: 18641-50.
29. Barmin R, Dasgupta A, Rix A, Weiler M, Appold L, Rutten S, Padilla F, Kuehne A, Pich A, **De Laporte L**, Kiessling F, Pallares R[§], Lammers T[§]. Enhanced stable cavitation and non-linear acoustic responses of PBCA polymeric microbubbles after bioconjugation. *ACS Biomaterials Science & Engineering* 2024, 10: 75-81.
30. Mathews HF, Çeper T, Speen T, Bastard C, Bulut S, Pieper MI, Schacher FH, **De Laporte L**, Pich A. Engineering poly(dehydroalanine)-based gels *via* droplet-based microfluidics: from bulk to microspheres. *Soft Matter* 2024, 20: 6231-46.
31. Castro AL, Vedaraman S, Haraszti T, Barbosa MA, Gonçalves RM, **De Laporte L**. Engineering anisotropic cell models: development of collagen hydrogel scaffolds with magneto-responsive PEG microgels for tissue engineering applications. *Adv. Materials Technologies* 2024, 9: 2301391.
32. Castro Nava A*, Doolaar IC*, Labude N, Malyaran H, Babu S, Chandorkar Y, Di Russo J, Neuss S[§], **De Laporte L**[§]. Actuation of soft thermoresponsive hydrogels mechanically stimulates osteogenesis in human mesenchymal stem cells without biochemical factors. *ACS Appl. Mater. Interfaces* 2024, 16: 30.
33. Bulut S*, Günther D*, Bund M, Haats C, Bissing T, Bastard C, Wessling M, **De Laporte L**[§], Pich A[§]. Cellular architects at work: cells building their own microgel houses. *Adv. Healthc. Mat.* 2023, 13: e2302957.
34. Kittel Y, Guerzoni LPB, Itzin C, Rommel D, Mork M, Bastard C, Häßel B, Omidinia-Anarkoli A, Centeno SP, Haraszti T, Kim K, Guck J, Kuehne AJC[§], **De Laporte L**[§]. Varying the stiffness and diffusivity of rod-shaped microgels independently through their molecular building blocks. *Angewandte Chemie Int. Ed.* 2023, e202309779.
35. Schynke L, Meeremans M, Meyer AA, Schoolaert E, Geltmeyer J, Omidinia-Anarkoli A, Van Vlierberghe S, Daelemans L, **De Laporte L**, De Schauwer C, Hoogenboom R, De Clerck K. Cell guiding multicomponent nanoyarn tendon scaffolds with tunable morphology and flexibility. *ACS Appl. Mater. Interfaces* 2023, 15: 42241.
36. Jung SH, Meyer F, Hörnig S, Bund M, Häßel B, Guerzoni LPB, **De Laporte L**, Ben Messaoud G, Centeno SP, Pich A. On-Chip fabrication of colloidal suprastructures by assembly and supramolecular interlinking of microgels. *Small* 2023, 13: e2303444.

37. Bastard C, Günther D, Gerardo-Nava J, Dewerchin M, Sprycha P, Licht C, Lüken A, Wessling M, **De Laporte L**. How does temporal and sequential delivery of multiple growth factors affect vascularization inside 3D hydrogels? *Advanced Therapeutics* 2023, 2300091.
38. **De Laporte L**, Kiessling F. Transformative medical materials. *Adv. Healthc. Mat.* 2023, e2301637.
39. Gerardo-Nava JL*, Jansen J*, Günther D*, Klasen L, Thiebes AL, Niessig B, Bergerbit C, Meyer AA, Linkhorst J, Bart M, Akhyari P, Stingl J, Nagel S, Stiehl T, Lampert A, Leube R, Wessling M, Santoro F, Ingebrandt S, Jockenhoevel S, Herrmann A, Fischer H, Wagner W, Schmitt RH, Kiessling F, Kramann R, **De Laporte L**. Transformative materials to create 3D functional human tissue models in vitro in a reproducible manner. *Adv. Healthc. Mat.* 2023, e2301030.
40. Fernández-Colino A, Kiessling F, Slabu I, **De Laporte L**, Akhyari P, Nagel SK, Stingl J, Reese S, Jockenhoevel S. Lifelike Transformative Materials for Biohybrid Implants: Inspired by Nature, Driven by Technology. *Adv. Healthc. Mat.* 2023, e2300991.
41. Dasgupta A, Sun T, Palomba R, Rama E, Zhang Y-Z, Power C, Moeckel D, Liu M, Weiler M, Motta A, Barmin A, Graham A, McClelland A, Rommel D, Kiessling F, Pallares RM, **De Laporte L**, Decuzzi P, McDannold N, Mitragotri S*, Lammers T*. Nonspherical ultrasound bubbles. *PNAS* 2023, 120: e2218847120.
42. Boesveld S*, Kittel Y*, Luo Y, Jans A, Oezciftci A, Bartneck M, Preisinger C, Rommel D, Boersma A, Haraszti T, Trautwein C[§], **De Laporte L**[§], Kuehne AJC[§], Strnad P[§]. Microgels as platforms for antibody-mediated cytokine scavenging. *Adv. Healthc. Mat.* 2023, e2300695.
43. Sheybanifard M, Guerzoni LPB, Omidinia-Anarkoli A, **De Laporte L**, Buyel J, Besseling R, Damen M, Gerich A, Lammers L, Metselaar JM. Liposome manufacturing under continuous flow conditions: towards a fully integrated set-up with in-line control of critical quality attributes. *Lab on a Chip* 2022, 23: 182.
44. Suturen AC, Krüger AJD, Neidig K, Klos N, Bund M, Gronemann T, Sebers R, Manukanc A, Yazdani G, Kittel Y, Rommel D, Haraszti T, Köhler J, **De Laporte L**. Annealing high aspect ratio microgels into macroporous 3D scaffolds allows for higher porosities and effective cell migration. *Advanced Healthcare Materials* 2022, 11: e2200989.
45. Braunmiller DL*, Babu S*, Gehlen DB, Seuß M, Haraszti T, Falkenstein A, Eigen J, **De Laporte L**[§], Crassous J[§]. Pre-programmed rod-shaped microgels to create multi-directional Anisogels for 3D tissue engineering. *Advanced Functional Materials* 2022, 32: 2202430.
46. Friedman F, Babu S, Springer R, Konrad J, Herfs Y, Gerlach S, Gehlen J, Krause H.-J., **De Laporte L**, Merkel R, Noetzel E. ECM-transmitted shear stress induces apoptotic cell extrusion in early breast gland development. *Frontiers in Cell and Developmental Biology* 2022, 10: 947430.
47. Barmin R, Dasgupta A, Bastard C, **De Laporte L**, Rütten S, Weiler M, Kiessling K, Lammers T, Pallares RM. Engineering the acoustic response and drug loading capacity of PBCA-based polymeric microbubbles with surfactants. *Molecular Pharmaceutics* 2022, 19: 3256.
48. Guerzoni LPB, de Goes AVC, Kalacheva M, Hadula J, Mork M, **De Laporte L**, Boersma AJ. High macromolecular crowding in liposomes from microfluidics. *Advanced Sciences* 2022, 9: 2201169.
49. Babu S, Chen I, Vedaraman S, Gerardo-Nava J, Licht C, Kittel Y, Haraszti T, Russo JD, **De Laporte L**. How do the local physical, biochemical, and mechanical properties of a synthetic Anisogel affect oriented nerve growth? *Advanced Functional Materials* 2022, 32: 2202468.
50. Bai X, Sun Q, Guerzoni LPB, Wuttke S, Kiessling F, **De Laporte L**, Lammers T, Shi Y. Controlled covalent self-assembly of a homopolymer for multi-scale materials engineering. *Advanced Materials* 2022, 34: 2109701.
51. Rommel D, Vedaraman S, Mork M, **De Laporte L**. Interlinked macroporous 3D scaffolds from microgel rods. *Journal of Visualized Experiments* 2022, 184, e64010.
52. Chandorkar Y, Bastard C, Di Russo J, Haraszti T, **De Laporte L**. Cells feel the beat – Temporal effect of cyclic mechanical actuation on muscle cells. *Applied Materials Today* 2022, 27: 101492.
53. Jung S-H, Bulut S, Guerzoni LPB, Günther D, Braun S, **De Laporte L**, Pich A. Fabrication of pH-degradable supramolecular microgels with tunable size and shape via droplet-based microfluidics. *Journal of Colloid and Interface Science* 2022, 617: 409.
54. Rommel D, Mork M, Vedaraman S, Bastard C, Guerzoni LPB, Kayku Y, Vinokur R, Born N, Haraszti T, **De Laporte L**. Functionalized microgel rods crosslinked into soft macroporous structures for 3D cell culture. *Advanced Science* 2022, e2103554.

55. Kittel Y, Kuehne AJC*, **De Laporte L***. Translating therapeutic microgels into clinical applications. *Advanced Healthcare Materials* 2021, e2101989.
56. De Keer L, Cavalli F, Estupiñán D, Krüger AJD, Rocha S, Van Steenberge PHM, Reyniers M-F, **De Laporte L**, Hofkens J, Barner L, D'hooge DR. Synergy of advanced experimental and modeling tools to underpin the synthesis of static step-growth-based networks involving polymeric precursor building blocks. *Macromolecules* 2021, 54: 9280.
57. Vedaraman S, Perez-Tirado A, Gerardo-Nava J, Haraszti T, Nishiguchi A, **De Laporte L**. Anisometric microstructures to determine minimal critical physical cues required for neurite alignment. *Adv. Healthcare Materials* 2021, 10: e2100874.
58. Babu S, Albertine F, Omidinia-Anarkoli A, **De Laporte L**. Controlling structure with injectable biomaterials to better mimic tissue heterogeneity and anisotropy. *Advanced Healthcare Materials* 2021, 10: e2002221.
59. Vedaraman S, Licht JC, Bernhagen D, Timmerman P, **De Laporte L**. Bicyclic RGD peptides enhance nerve growth in synthetic PEG-based Anisogels. *Biomaterials Science* 2021, 9: 4329.
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68. Rose JC, Fölster M, Kivilip L, Gerardo-Nava JL, Jaekel EE, Gehlen DB, Rohlf W[§], **De Laporte L**[§]. Predicting the orientation of magnetic microgel rods for soft anisotropic biomimetic hydrogels. *Polymer Chemistry* 2020, 11: 496.
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101. **De Laporte L**, Shea LD. Matrices and Scaffolds for DNA Delivery in Tissue Engineering. *Adv Drug Delivery Reviews* 2006, 59: 292.
102. **De Laporte L**, Cruz Rea J, Shea LD. Design of modular non-viral gene therapy vectors. *Biomaterials* 2006, 28: 947.
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BOOK CHAPTERS

1. M  hl, Ninon and **Laura De Laporte**. Chapter 7: "Multiphasic Anisotropic Systems" in Volume 1: *Advanced Polymer Life Science of Polymer Soft Matter Science & Engineering*. pp. 231-278. World Scientific Series on Emerging Technologies, 2025. DOI: 10.1142/9789819806782_0007
2. Gerardo Nava, Jose L., Jonas C. Rose, Haktan Altinova, Paul D. Dalton, **Laura De Laporte**, and Gary A. Brook. Book Chapter "Nanofibers and Nanostructured Scaffolds for Nervous System Lesions" in *Nanomedicines for Brain Drug Delivery*, pp. 61-101. Humana, New York, NY, 2021. DOI: 10.1007/978-1-0716-0838-8_3

PATENTS

1. **De Laporte L**, Mork M, M  hl N: Parallelized fabrication of anisometric microgels in microfluidics, EP-Priority application EP25195940.9, August 2025.
2. **De Laporte L**, Klasen L, Mork M: Assembly, expansion, and differentiation of stem cells by microgels, EP-Priority application EP 25193787.6, August 2025.
3. **De Laporte L**, K  hler J, Kr  ger A: Deutsche Patentanmeldung Nr. 10 2023 108 039.3 Titel: Ein System zur Herstellung eines degradierbaren Hydrogels, March 2023.
4. **De Laporte L**, Moeller M, Rose JC, Omidinia-Anarkoli A: Macroscopically alignable, injectable, soft hydrogel composite (EP 3452120 B1, May 27 2020; US 11071806 B2, Jul 21 2021; EP 20166781.3 Divisional, 2022).
5. Hubbell JA, Martino MM, **De Laporte L**, Rice JJ, Tortelli F.: Tissue Repair Formulations from extracellular matrix heparin-binding domains. U.S. Patent (US 20140011978 A1, Jan 9 2014)
6. Shea LD, Shea LL, Whittlesey KJ, Yang Y, Rives CB, **De Laporte L**, Jang J-H. Biodegradable scaffolds and uses thereof. U.S. Patent (Patent No US 7,846,466 B2, Dec 7 2010)

TEACHING AT RWTH

2020 – current	Polymer Properties and Characterization Methods, Max Planck School – Matter to Life (10 h, SS Summer Semester)
2019 – current	Macromolecular Chemistry II, Chemistry B.Sc., RWTH (10,5 h, SS)
2018 – current	Biomaterials, Chemistry M.Sc., RWTH (10,5 h, both WS and SS)

2018 – current	Introduction to Polymers, Chemistry and Biochemistry, Biomedical Engineering M.Sc., UKA/RWTH (10,5 hrs, WS Winter Semester)
2015 – 2017	Introduction to Polymers, Chemistry and Biochemistry, Biomedical Engineering M.Sc., UKA/RWTH (6 hrs, WS)
2016 – current	Materials Science and Processing, Biomedical Engineering M.Sc., UKA/RWTH (4,5 hrs)
2017 – current	Biointerface/Implantologie, Biomedical Engineering M.Sc., UKA/RWTH (1,5 hrs, WS)
09/2022	Passion for Science, Max Planck School Days, Berlin
09/2022	Summer School SFB985 RWTH: Microgels as solution to solve challenges in tissue engineering, Monschau
10/2021	Digital Seminar SFB1459 – Intelligent Matter, Westfälische Wilhelms-Universität (WWU) Münster
09/2021	Lecture: Synthetic hydrogels for Tissue Engineering, GRK2415 – Mechanobiology, Aachen
11/2021	Lecture: Production methods and characterization of microgels to tackle tissue engineering challenges, GRK2415 – Mechanobiology, Aachen
05/2021	Digital Rudolf Mößbauer Colloquium - Max Planck Institute for Medical Research
01/2019	Colloquium Macromolecular Chemistry, University of Mainz
12/2018	Colloquium Physical Chemistry, University of Dusseldorf
09/2018	Guest Lecture RTG1865: Hydrogel-based microsystems, Dresden
07/2018	Summer School SFB985 RWTH - Georgia Tech University: Microgels for regenerative medicine, Monschau
05/2018	Ringleecture Collaborative Research Center, CRC985 Functional microgels and microgel systems, RWTH
06/2016	Neurosciences, Biomedical Engineering M.Sc., RWTH (1,5 hrs)
06/2015	Summer School RWTH - Georgia Tech University: Fabrication of anisometric microgels, Aachen
04/2015	Colloquium Biotechnology, Uniklinik Aachen
09/2014	Biomaterials for Tissue Engineering, Biotechnology, RWTH (Guest lecture)
04/2014	Introduction to Tissue Engineering, University of Ghent (Guest lecture)

AWARDS

2024	Belgian Polymer Award
2019	Steinhofer Vorlesung
2018	Young Investigator Award – Engineering Conferences International
2016	Max-Buchner-Forschungsförderung
09/2008 – 06/2009	Terminal Year Richter Fellowship, Northwestern University
2008	AIChE Women's Initiatives Committee Travel Award, USA
2006, 2007, 2008	Conference Travel Grant, Northwestern University (yearly)
2006	CGM Travel Fellowship Award, USA
09/2004 – 08/2005	International Doctoral Fellowship, Northwestern University

SCIENTIFIC PRESENTATIONS

2027 Planned: Microgel Frontier, Okayama University, Japan

2026 Planned: Advanced Functional Polymers in Medicine, Queen Mary University of London, UK; Annual Conference of the German Society for Biomaterials (DGBM), Aachen; 35th Annual Conference of the European Society for Biomaterials (ESB), Antwerp, BE.

Presence: 28. Jahrestagung der IGLD e.V. – INSTAND, Frankfurt; IMX Colloquium EPFL, CH; Tissue Engineering & Regenerative Medicine International Society (TERMIS), Palma.

2025 Presence: MTL Spring days, Heilbronn; TERMIS, Freiburg; Termis AM, Detroit; Shea Lab Symposium, U. of Michigan, Ann Arbor; Pacificchem, Honolulu; Seminar ICORD, Vancouver; Seminar Biomedical Engineering, UBC Vancouver

Digital: Supralife 3rd School; 6th Virtual European Polymer Conference; Workshop with Institute of Science Tokyo; Max Planck School ‚Matter to Life‘ Lecture Series.

2024 Presence: Joint Workshop RWTH, Tokyo Tech and TMDU: Novel materials and AI-based methods for healthcare applications, Tokyo JP; Seminar Heinrich Heine University Düsseldorf; Seminar Max Planck Institute for Polymer Research, Mainz; Annual Meeting Material-driven regeneration, Eindhoven NL; Future 3D Additive Manufacturing Conference, Schöntal Monestary; World Biomaterials Congress, Daegu S. Korea; Belgian Polymer Conference, De Haan, BE; Annual Meeting European Society for Artificial Organs, Aachen; Annual meeting Belgian Society for Tissue Engineering, Leuven BE; Joint Workshop RWTH and Institute of Science Tokyo: Transformative medical materials

Digital: BASF

2023 Digital: International Webinars on Topics on Cell and Tissue Engineering (CTEng), University of Aveiro PT.

Presence: 4th Patricia Levy Zusman International Workshop on Neuroregeneration, Houston Methodist Hospital US; BME Neuroscience seminar, University Hospital RWTH Aachen; Killam Seminar, McGill University Montreal CA; Summer School 3D printing and Biofabrication, University Medical Center Utrecht NL; ETH Zürich Seminar, CH; SPP2451 Living Material Workshop, Saarland University Saarbrücken; Dresden Polymer Conference; Center for Molecular Medicine Cologne Seminar, University of Cologne; European Society for Biomaterials, Davos CH; Chemistry for a better Life, RWTH Aachen.

2022 Digital: 16th Annual Meeting RSC Biomaterials Chemistry; Faculty Club RWTH; Spring Days Max Planck School Matter to Life

Presence: Institute for Complex Molecular Systems (ICMS) symposium, Eindhoven; Max Planck School Days, Berlin; SIIRI Symposium Hannover; Spinal Research (ISRT), London; Material Science and Engineering (MSE), Darmstadt; Joint Symposium RTG2375 RWTH-TU Eindhoven, Aachen; Seminar, TU Eindhoven; Merck-GDCh-Kolloquiums, Darmstadt; Biofabrication meets Infection Symposium, Würzburg, Physiologisches Kolloquium UKA, Aachen

2021 Digital: Tissue Engineering and Regenerative Medicine International Society (TERMIS) World Conference; Japanese Society for Cell Synthesis Research; Seminar CRC 1459 – Intelligent Matter; European Society for Biomaterials (ESB); Korean Spinal Research Society; International Online Spinal Cord Injury seminar Series (I-OSCIRS); GDCh Lectures; Seminar University of Hasselt; Umbrella Meeting with Technion University Israel; Rudolf Mößbauer Colloquium - Max Planck Institute for Medical Research; Webinar International Society for Biofabrication (ISBF); Seminar University of Erlangen; Japan-Aachen Workshop Nanomedicine; German-American Frontiers of Engineering (GAFOE)

2020 Digital: 5th Bioinspired Materials, Irsee; Max Planck School: Matter to Life Lecture Series Webinar; SynCell2020 Virtual Symposium; Online seminar for the German Society for Biomaterials; Leibniz Meet the Scientist; Online Seminar EPFL; Tissue Engineering Conference UKA Aachen; Moderator Brightland Feel the Chemistry, Health Challenge, Geleen, NL

2019 Seminar University Duisburg-Essen; Seminar University Mainz; Biospine Rome IT; Steinhöfer Vorlesung Freiburg DE; Leibniz Gemeinschaft ERC workshop, Berlin; Max Planck School, Heidelberg; 16th Biennial Bayreuth Polymer Symposium; Particle Based Materials Symposium, Ulm; Biofabrication, Columbus OH, USA; RWTH Senioren, Aachen; N2 Event, Berlin; Sino Event, Aachen; APC Twin Waters, Australia; Bioinspired Materials, Monte Verita, CH; MERLN PhD Symposium Maastricht, NL; Chains Eindhoven, NL; Block-Kolloquium Biomedical materials INM Saarbrücken

2018 Seminar University Dusseldorf; Jahrestagung der Deutschen Gesellschaft für Biomaterialien, Braunschweig; Magnetism, Paris FR; Biointerface International Conference, Zurich CH, Nanotechnology in Medicine II, Albufeira PT, Konferenz Materialinnovationen - Material Vital, München, 2nd Theodore von Kármán - Discussion Conference on Materials for Life, Bergisch Gladbach; KStV Grotenburg Lusatia, Aachen; Kékulé Cycle, Antwerp BE; ACS Annual Meeting, New Orleans, US;

Seminar Forces, materials, cellular responses, Aachen; 9th Workshop of Chemical and Biological Micro Laboratory Technology, Ilmenau.

2017 Ringberg Castle Symposium on 4D Molecular Systems Engineering, Schlöss Ringberg; Jahrestagung der Deutschen Gesellschaft für Biomaterialien, Würzburg; American Institute of Chemical Engineers (AIChE), Minneapolis US; Particle-Based Materials Symposium, Saarbrücken; Mechanobiologie-Kolloquium, Aachen DE; 12th International Conference on Advanced Polymers via Macromolecular Engineering, Ghent BE; NVMB-NBTE symposium, Lunteren NL; Biospine, Berlin; eFFECT event on ChemTech & Healthcare, Ghent BE; Mechanobiology-Symposium, Uniklinik Aachen; The 13th Zsigmondy colloquium of the German Colloid Society, Saarbrücken; Symposium “Biomaterials-based approaches to personalized medicine”, Leibniz Gesundheitstechnologien, Berlin; 5th International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon Portugal.

2016 7th BSRT Symposium “Regenerate me if you can” Foster success in compromised regenerative processes, Charité, Berlin DE; American Institute of Chemical Engineers (AIChE), San Francisco US; Biomedical engineering Society (BMES) (*poster*), Minneapolis US; Jahrestagung der Deutschen Gesellschaft für Biomaterialien, Aachen DE; Active Hydrogels - An interdisciplinary symposium on the different designs and utilizations of hydrogels, Schlöss Ringberg DE.

2015 BSRT Symposium “Revealing Prometheus secrets” Current technologies for tissue & organ regeneration and their clinical perspective, Charité, Berlin DE; Engineering Life: Synthetic biology meets bio-inspired materials, Dresden DE; Engineering of functional interfaces (Enfi), Hannover DE; Selega Symposium, Osaka University Japan; Umbrella Symposium, Haifa Israel.

2014 Umbrella Symposium, Aachen DE; Aachen Polymer Chain (APC) Talks, Aachen DE.

<2014 Tissue Engineering & Regenerative Medicine International Society (TERMIS): Vienna, Austria (2014), Galway, Ireland (2010); AIChE: Philadelphia, US (2008), Salt Lake City US (2007), San Francisco US (2006); Society for Neuroscience, Atlanta, US (*poster*) (2006).

ORGANIZATION CONFERENCES

09/2023	European Society for Biomaterials Conference, Davos CH
2021-24	Women Interactive Materials Award (WIMA), DWI
09/2022	GDCh meeting of the Macromolecular Chemistry Division, Aachen
04/2019	GDCh-Wissenschaftsforums Chemie 2019 – Session „Interactive Materials for Life“, Aachen
04/2018	2nd Theodore von Kármán – Discussion Conference on Materials for Life: Bioinspired and biomimetic hydrogels, Bergisch Gladbach
08/2016	Jahrestagung der Deutschen Gesellschaft für Biomaterialien, Aachen