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Curriculum vitae

Dr. Shiqi Wang is a Docent (Adjunct Professor) and Principal Investigator at the Faculty of Pharmacy, University of Helsinki. Her research focuses on the **fundamental understanding and development of nanoparticles for intracellular drug delivery** (<http://www.helsinki.fi/intracellular-drug-delivery>).

Short Biography

Dr. Wang obtained her BSc and MSc in chemistry from the Department of Chemistry Tsinghua University (China). In 2018, she obtained her PhD from Imperial College London (UK) with exceptional merits, and then joined the University of Helsinki, Faculty of Pharmacy as a Postdoctoral Fellow in Prof. Hélder Santos' group. In 2022, Dr. Wang got the Title of Docent in Pharmaceutical Nanotechnology, and in 2023, the Faculty of Pharmacy appointed her as the Principal Investigator.

Dr. Shiqi Wang has several ongoing projects funded by the Research Council of Finland (former Academy of Finland), Sigrid Jusélius Foundation, Finnish Red Cross Blood Service Research Fund, and Jane and Aatos Erkkö Foundation. **In 2023, Dr. Wang received the ERC starting grant of 1.5 M€**, to develop innovative solutions for intracellular drug delivery quantification.

Education

2014-2018	Ph.D. in Chemical Engineering, Imperial College London, UK
2012-2014	M.Sc. in Polymer Chemistry, Tsinghua University, China
2008-2012	B.Sc. in Chemical Biology, Tsinghua University, China

Employment

Supervisor for doctoral programme

Doctoral Programme in Drug Research
University of Helsinki
Finland
1 Jan 2021 → present

Title of Docent

Divisions of Faculty of Pharmacy
University of Helsinki
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31 Oct 2022 → present

Academy Research Fellow

Division of Pharmaceutical Chemistry and Technology
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1 Sept 2023 → present

Principal Investigator

Drug Research Program

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31 Mar 2023 → present

Nanomedicines and Biomedical Engineering

University of Helsinki
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1 Nov 2022 → present

Projects

Awards and Fellowships

2022 Faculty of Pharmacy Young Researcher's Award, € 10000.
2020 Finnish Culture Foundation Postdoctoral grant, € 30000. Role: PI.
2019 Jenny and Antti Wuhurin Foundation Postdoctoral grant, € 28000. Role: PI.
2019 Finnish Pharmaceutical Society most outstanding research article award.
2019 Weinberg Prize of Imperial College London for research of outstanding ingenuity, originality and elegance during PhD.

Publications

Quantitative analysis of electroporation-mediated intracellular delivery via bioorthogonal luminescent reaction

Wang, S., Shcherbii, M. V., Hirvonen, S., Silvennoinen, G., Sarparanta, M. & Santos, H., 15 Aug 2024, In: Communications chemistry. 7, 1, 12 p., 181.

Cell-mediated nanoparticle delivery systems: towards precision nanomedicine

Cheng, R. & Wang, S., 2024, In: Drug Delivery and Translational Research.

Implantable patch of oxidized nanofibrillated cellulose and lysozyme amyloid nanofibrils for the regeneration of infarcted myocardium tissue and local delivery of RNA-loaded nanoparticles

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Enhancing Apoptosome Assembly via Mito-Biomimetic Lipid Nanocarrier for Cancer Therapy

Han, H., Chen, J., Li, J., Correia, A., Bártoło, R., Shahbazi, M.-A., Teesalu, T., Wang, S., Cui, W. & Santos, H. A., Nov 2023, In: Advanced Functional Materials. 33, 46, 11 p., 2305316.

Mycophenolic Acid-loaded Naïve Macrophage-derived Extracellular Vesicles Rescue Cardiac Myoblast after Inflammatory Injury

Gao, H., Wang, S., Liu, Z., Hirvonen, J. & Santos, H. A., 16 Oct 2023, In: ACS Applied Bio Materials. 6, 10, p. 4269-4276 8 p.

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Evaluation of cell membrane-derived nanoparticles as therapeutic carriers for pancreatic ductal adenocarcinoma using an in vitro tumour stroma model

Tapeinos, C., Torrieri, G., Wang, S., Martins, J. P. & Santos, H. A., Oct 2023, In: Journal of Controlled Release. 362, p. 225-242 18 p.

Development of siRNA and Budesonide Dual-Loaded Hybrid Lipid-Polymer Nanoparticles by Microfluidics Technology as a Platform for Dual Drug Delivery to Macrophages: An In Vitro Mechanistic Study

Cerda, S. L., Fontana, F., Wang, S., Correia, A., Molinaro, G., Tello, R. P., Hirvonen, J., Celia, C., Barreto, G. & Santos, H. A., Aug 2023, In: *Advanced Therapeutics*. 6, 8, 16 p., 2300048.

Fabrication of hydrogel microspheres via microfluidics using inverse electron demand Diels-Alder click chemistry-based tetrazine-norbornene for drug delivery and cell encapsulation applications

Tello, R. P., Wang, S., Fontana, F., Correia, A., Molinaro, G., Cerda, S. L., Hietala, S., Hirvonen, J., Barreto, G. & Santos, H. A., 12 Jul 2023, In: *Biomaterials Science*. 11, 14, p. 4972-4984 13 p.

In Vitro Study of the Anti-inflammatory and Antifibrotic Activity of Tannic Acid-Coated Curcumin-Loaded Nanoparticles in Human Tenocytes

Molinaro, G., Fontana, F., Pareja Tello, R., Wang, S., López Cerdá, S., Torrieri, G., Rebelo Correia, A. M., Waris, E. M., Hirvonen, J. T., Barreto, G. & Santos, H. A., 2 May 2023, In: *ACS Applied Materials & Interfaces*. 15, 19, p. 23012-23023 12 p.

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Li, J., Wang, S., Fontana, F., Tapeinos, C., Shahbazi, M.-A., Han, H. & Santos, H. A., May 2023, In: *Bioactive Materials*. 23, p. 471-507 37 p.

Acid-labile chemical bonds-based nanoparticles for endosome escape and intracellular delivery

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Hydrogels: from Bubble Tea to Cancer Therapy

Wang, S., 2023, In: *Blogging Science*.

Rational design of a polysaccharide-based viral mimicry nanocomplex for potent gene silencing in inflammatory tissues

Gao, H., Wang, S., Long, Q., Cheng, R., Lian, W., Koivuniemi, A., Ma, M., Zhang, B., Hirvonen, J., Deng, X., Liu, Z., Ye, X. & Santos, H. A., 2023, In: *Journal of Controlled Release*. 357, p. 120-132 13 p.

A pH-Responsive Cluster Metal-Organic Framework Nanoparticle for Enhanced Tumor Accumulation and Antitumor Effect

Cheng, R., Jiang, L., Gao, H., Liu, Z., Mäkilä, E., Wang, S., Saiding, Q., Xiang, L., Tang, X., Shi, M., Liu, J., Pang, L., Salonen, J., Hirvonen, J., Zhang, H., Cui, W., Shen, B. & Santos, H. A., 20 Oct 2022, In: *Advanced Materials*. 34, 42, 13 p., 2203915.

Quantitative Analysis of Porous Silicon Nanoparticles Functionalization by ¹H NMR

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Microfluidics Fabrication of Micrometer-Sized Hydrogels with Precisely Controlled Geometries for Biomedical Applications

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Multifunctional Biomimetic Nanovaccines Based on Photothermal and Weak-Immunostimulatory Nanoparticulate Cores for the Immunotherapy of Solid Tumors

Li, J., Huang, D., Cheng, R., Figueiredo, P., Fontana, F., Correia, A., Wang, S., Liu, Z., Kemell, M., Torrieri, G., Makila, E. M., Salonen, J. J., Hirvonen, J., Gao, Y., Li, J., Luo, Z., Santos, H. A. & Xia, B., Mar 2022, In: *Advanced Materials*. 34, 9, 12 p., 2108012.

Neonatal Fc receptor-targeted lignin-encapsulated porous silicon nanoparticles for enhanced cellular interactions and insulin permeation across the intestinal epithelium

Martins, J. P., Figueiredo, P., Wang, S., Espo, E., Celi, E., Martins, B., Kemell, M., Moslova, K., Mäkilä, E., Salonen, J., Kostiaainen, M., Celia, C., Cerullo, V., Viitala, T., Sarmiento, B., Hirvonen, J. & Santos, H. A., Mar 2022, In: *Bioactive Materials*. 9, p. 299-315 17 p.

Dual-Crosslinked Dynamic Hydrogel Incorporating {Mo-154} with pH and NIR Responsiveness for Chemo-Photothermal Therapy

Guedes, G., Wang, S., Fontana, F., Figueiredo, P., Linden, J., Correia, A., Pinto, R. J. B., Hietala, S., Sousa, F. L. & Santos, H. A., 7 Oct 2021, In: *Advanced Materials*. 33, 40, 10 p., 2007761.

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Liu, Z., Wang, S., Tapeinos, C., Torrieri, G., Känkänen, V., Ibrahim, N. E. A. A., Python, A., Hirvonen, J. & Santos, H. A., Jul 2021, In: *Advanced Drug Delivery Reviews*. 174, p. 576-612 37 p.

Acetalated dextran based nano- and microparticles: synthesis, fabrication, and therapeutic applications

Wang, S., Fontana, F., Shahbazi, M.-A. & Santos, H. A., 2 May 2021, In: *Chemical Communications*. 57, 35, p. 4212-4229 18 p.

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Wang, S., 23 Mar 2021, In: *Frontiers in Chemistry*. 9, 8 p., 645297.

Intracellular delivery of budesonide and polydopamine co-loaded in endosomolytic poly(butyl methacrylate-co-methacrylic acid) grafted acetalated dextran for macrophage phenotype switch from M1 to M2

Wang, S., Wannasarit, S., Figueiredo, P., Molinaro, G., Ding, Y., Correia, A., Casettari, L., Wiwattanapatapee, R., Hirvonen, J., Liu, D., Li, W. & Santos, H. A., Jan 2021, In: *Advanced Therapeutics*. 4, 1, 11 p., 2000058.

Investigation of silicon nanoparticles produced by centrifuge chemical vapor deposition for applications in therapy and diagnostics

Lumen, D., Wang, S., Mäkilä, E., Imlimthan, S., Sarparanta, M., Rebelo Correia, A. M., Haug, C. W., Hirvonen, J., Santos, H. A., Airaksinen, A., Filtvedt, W. & Salonen, J., Jan 2021, In: *European Journal of Pharmaceutics and Biopharmaceutics*. 158, p. 254-265 12 p.

Recombination Monophosphoryl Lipid A-Derived Vacosome for the Development of Preventive Cancer Vaccines

Cheng, R., Fontana, F., Xiao, J., Liu, Z., Figueiredo, P., Shahbazi, M.-A., Wang, S., Jin, J., Torrieri, G., Hirvonen, J. T., Zhang, H., Chen, T., Cui, W., Lu, Y. & Santos, H. A., 7 Oct 2020, In: *ACS Applied Materials & Interfaces*. 12, 40, p. 44554-44562 9 p.

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Guedes, G., Wang, S., Santos, H. A. & Sousa, F. L., 16 Jun 2020, In: *European Journal of Inorganic Chemistry*. 2020, 22, p. 2121-2132 12 p.

Superfast and controllable microfluidic inking of anti-inflammatory melanin-like nanoparticles inspired by cephalopods

Wang, S., Wannasarit, S., Figueiredo, P., Li, J., Rebelo Correia, A. M., Xia, B., Wiwattanapatapee, R., Hirvonen, J., Liu, D., Li, W. & Santos, H. A., 1 Jun 2020, In: *Materials Horizons*. 7, 6, p. 1573-1580 8 p.

Intracellular co-delivery of melanin-like nanoparticle and budesonide by endosomolytic polymeric materials for anti-inflammatory therapy

Wang, S., Wannasarit, S., Figueiredo, P., Li, J., Rebelo Correia, A. M., Xia, B., Wiwattanapatapee, R., Hirvonen, J., Liu, D., Santos, H. A. & Li, W., 2020, (Submitted) *47th Controlled Release Society Annual Meeting & Exposition*.

Antitumor Therapeutics: A Virus-Mimicking pH-Responsive Acetalated Dextran-Based Membrane-Active Polymeric Nanoparticle for Intracellular Delivery of Antitumor Therapeutics (Adv. Funct. Mater. 51/2019)

Wannasarit, S., Wang, S., Figueiredo, P., Trujillo Olvera, C. X., Eburnea, F., Simón-Gracia, L., Correia, A., Ding, Y., Teesalu, T., Liu, D., Wiwattanapatapee, R., Santos, H. A. & Li, W., 19 Dec 2019, In: Advanced Functional Materials. 29, 51, p. 1970351 1 p.

A Virus-Mimicking pH-Responsive Acetalated Dextran-Based Membrane-Active Polymeric Nanoparticle for Intracellular Delivery of Antitumor Therapeutics

Wannasarit, S., Wang, S., Figueiredo, P., Trujillo Olvera, C. X., Eburnea, F., Simón-Gracia, L., Correia, A., Ding, Y., Teesalu, T., Liu, D., Wiwattanapatapee, R., Santos, H. A. & Li, W., 19 Dec 2019, In: Advanced Functional Materials. 29, 51, 14 p., 1905352.