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Squaramide-based supramolecular materials for 3D cell culture applications

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Curriculum Vitae

Ciqing Tong was born on July 17, 1989 in Jinhua, Wuyi (China). In 2008, she graduated from Wuyi third middle School, where she became interested in science. She then started her BSc studies in Pharmaceutical Engineering at the University of Jilin Institute of Chemical Technology. In 2012, she started her Master studies in Applied Chemistry under the supervision of Prof. dr. Jian Song at Tianjin University and she achieved her MSc degree in June 2015.

In September 2015, she started her PhD studies in the group of Supramolecular and Biomaterials Chemistry (SBC), Leiden Institute of Chemistry, under the supervision of Dr. R.E. Kieltyka and Prof. dr. A. Kros. During her PhD studies, she also collaborated with Prof. dr. D. Heinrich (Leiden University), Dr. Y.F.M. (Yolande) Ramos (Leiden University Medical Center), Dr. S.E. Le Dévédec (Leiden University), Prof. dr. E.H.J. Danen (Leiden University), Prof. dr. I.K. Voets (Technische Universiteit Eindhoven), Dr. R.I. Koning (Leiden University Medical Center), Dr. T.H. Sharp (Leiden University Medical Center), Prof. dr. C.L. Mummery (Leiden University Medical Center), and Dr. V.V. Orlova (Leiden University Medical Center).

The results disclosed in this thesis were presented at the following conferences:

1. "Squaramide-based supramolecular materials for three-dimensional cell culture of human induced pluripotent stem cells and their derivatives" Chains 2017, 5-6 Dec. 2017, Veldhoven, The Netherlands. (*Poster Presentation*)
2. "Squaramide-based supramolecular hydrogels for 3D cell culture." Dutch Polymer Day 2018, 15-16 Mar. 2018, The Netherlands. (*Oral Presentation and Poster Presentation*)
3. "Squaramide-based supramolecular materials for three-dimensional cell culture of human induced pluripotent stem cells and their derivatives" Reedijk Symposium 2018, 26 Oct. 2018, Leiden, The Netherlands. (*Oral Presentation and Poster Presentation*)
4. "Photopatternable, branched polymer hydrogels based on linear macromonomers for 3D cell culture applications" Dutch Polymer Day 2019, 25-26 Mar. 2019, The Netherlands. (*Poster Presentation*)

5. "Squaramide-Based Supramolecular Materials for Three-Dimensional Cell Culture" 14th International Symposium on Macrocyclic and Supramolecular Chemistry, 2-6 Jun. 2019, Lecce, Italy. (*Poster Presentation*)
6. "Self-assembly of squaramide molecules to engineer supramolecular materials in water for 3D cell culture applications" HBOND 2019 and Young Researchers Symposium, 23 Sep. 2019, Amsterdam, The Netherlands. (*Oral Presentation and Poster Presentation*)

List of publications

1. K. Fan, J. Song, Li, X. Guan, N. Tao, **C. Tong**, H. Shen and L. Niu. "Copper (II)-responsive gel-sol phase transition in supramolecular gel systems of salen-appended sorbitol." *J. Mater. Chem. C* **2013**, 1 (45), 7479-7482.
2. **C. Tong**, K. Fan, L. Niu, J. Li, X. Guan, N. Tao, H. Shen and J. Song. "Application of solubility parameters in a D-sorbitol-based organogel in binary organic mixtures." *Soft Matter* **2014**, 10 (5), 767-772.
3. **C. Tong**, T. Liu, V. Saez Talens, W.E. Noteborn, T.H. Sharp, M.M. Hendrix, I.K. Voets, C.L. Mummery, V.V. Orlova and R.E. Kieltyka. "Squaramide-based supramolecular materials for three-dimensional cell culture of human induced pluripotent stem cells and their derivatives." *Biomacromolecules* **2018**, 19 (4), 1091-1099.
4. J. Zhang, J. Liu, **C. Tong**, S. Chen, B. Zhang, and J. Song. "Smart materials for environmental remediation based on two-component gels: room-temperature-phase-selective gelation for the removal of organic pollutants including nitrobenzene/o-dichlorobenzene, and dye molecules from the wastewater." *Nanoscale Res. Lett.* **2019**, 14 (1), 1-10.
5. **C. Tong**, J.A. Wondergem, D. Heinrich and R.E. Kieltyka. "Photopatternable, branched polymer hydrogels based on linear macromonomers for 3D cell culture applications." *ACS Macro Lett.* **2020**, 9, 882-888.
6. **C. Tong**, J.A. Wondergem, M.C. Kwakernaak, M.M. Hendrix, I.K. Voets, S.E. Le Dévédec, E.H.J. Danen, D. Heinrich and R.E. Kieltyka. "On-demand light-activated stiffening of a multicomponent supramolecular material to direct cellular behavior in 3D." *Manuscript in preparation*.
7. **C. Tong**, J.A. Wondergem, D. Heinrich, Y.F.M. Ramos and R.E. Kieltyka. "Photo-activatable double networks based on one-dimensional supramolecular and covalent polymers for 3D chondrocyte culture" *Manuscript in preparation*.
8. **C. Tong**, J.A. Wondergem, S.E. Le Dévédec, E.H.J. Danen, D. Heinrich and R.E. Kieltyka. "Design the self-assembled supramolecular hydrogels to model the breast cancer cell invasion in vitro." *Manuscript in preparation*.
9. T. Liu, L. Berk, J.A. Wondergem, **C. Tong**, M.C. Kwakernaak, S.J. Braak, D. Heinrich, B. van de Water and R.E. Kieltyka. "Bioactive squaramide-based supramolecular materials promote maturation of HepG2 spheroids." *Manuscript submitted*.

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