

Yan-Yeung Luk – Complete List of Publications

PUBLICATIONS AS AN INDEPENDENT INVESTIGTOR

23. *Modification of Proteins with Cyclodextrins Prevents Aggregation and Surface Adsorption and Increases Thermal Stability* Deepali Prashar, DaWei Cui, Debjyoti Bandyopadhyay, and Yan-Yeung Luk* *Langmuir*, **2011**, *27*, 13091-6.
22. *Adamantane-Platinum Conjugate Hosted in β -Cyclodextrin: Enhancing Transport and Cytotoxicity by Noncovalent Modification* Deepali Prashar, Yi Shi, Debjyoti Bandyopadhyay, James Dabrowiak and Yan-Yeung Luk* *Bioorg. Med. Chem. Lett.*, **2011**, *21*, 7421-5.
21. *Noncovalent Polymerization of Mesogens Crystallizes Lysozyme: Correlation between Nonamphiphilic Lyotropic Liquid Crystal Phase and Protein Crystal Formation* Karen A. Simon, Gauri S. Shetye, Ulrich Englich,[†] Lei Wu,[‡] Yan-Yeung Luk* *Langmuir*, **2011**, *27*, 10901-6.
20. *Stereochemical Effects of Chiral Monolayers on Enhancing the Resistance to Mammalian Cell Adhesion* Debjyoti Bandyopadhyay, Deepali Prashar, Yan-Yeung Luk* *Chem. Comm.* **2011**, *47*, 6165-7.
19. *Anti-Fouling Chemistry of Chiral Monolayers: Enhancing Biofilm Resistance on Racemic Surface* Debjyoti Bandyopadhyay, Deepali Prashar and Yan-Yeung Luk* *Langmuir*, **2011**, *27*, 6124-31.
18. *Water-Driven Ligations Using Cyclic Amino Squarates: A Class of Useful S_N1 -Like Reactions* DaWei Cui, Deepali Prashar, Preeti Sejwal, Yan-Yeung Luk* *Chem. Comm.* **2011**, *47*, 1348-1350.
17. *Inhibiting microbial biofilm formation by brominated furanones* Hou, Shuyu; Duo, Miao; Han, Yongbin; Luk, Yan-Yeung; Ren, Dacheng *Medical Device Materials V, Proceedings of the Materials & Processes for Medical Devices Conference*, **2010**, 6-10.
16. *Noncovalent Polymerization and Assembly in Water Promoted by Thermodynamic Incompatibility* Karen A. Simon, Preeti Sejwal, Eric R. Falcone, Erik A. Burton, Sijie Yang, Deepali Prashar, Debjyoti Bandyopadhyay, Sri Kamesh Narasimhan, Nisha Varghese, Nimal S. Gobalasingham,[†] Jason B. Reese,[†] and Yan-Yeung Luk* *J. Phys. Chem. B*, **2010**, *114*, 10357-67.
15. *Inhibition of *Candida albicans* Growth by Natural and Synthetic Brominated Furanones* Miao Duo, Yan-Yeung Luk*, and Dacheng Ren* *Appl. Microbiol. Biotechnol.*, **2010**, *85*, 1551-63.
14. *Controlling Thread Assemblies of Pharmaceutical Compounds in Liquid Crystal Phase by Using Functionalized Nanotopography* Karen A. Simon, Erik A. Burton, Lei Wu and Yan-Yeung Luk* *Chem. Mater.*, **2010**, *22*, 2434-41.

13. *Induced Folding by Chiral Non-Planar Aromatics* Sri Kamesh Narasimhan, Deborah J. Kerwood, Lei Wu, Jun Li, Rosina Lombardi, Teresa B. Freedman* and Yan-Yeung Luk* *J. Org. Chem.*, **2009**, *74*, 7023-33.

12. *Selective Immobilization of Peptides Exclusively via N-Terminus Cysteines by Water-Driven Reactions on Surfaces* Preeti Sejwal, Sri Kamesh Narasimhan, Deepali Prashar, Debjyoti Bandyopadhyay and Yan-Yeung Luk* *J. Org. Chem.*, **2009**, *74*, 6843-46.

11. *Non-Amphiphilic Assembly in Water: Polymorphic Nature, Thread Structure and Thermodynamic Incompatibility* Lei Wu, Jyotsana Lal, Karen A. Simon, Erik A. Burton and Yan-Yeung Luk* *J. Am. Chem. Soc.*, **2009**, *131*, 7430-7443.

10. *Prolonged Control of Patterned Biofilm Formation by Bio-inert Surface Chemistry* Shuyu Hou, Erik A. Burton, Ricky Lei Wu, Yan-Yeung Luk* and Dacheng Ren* *Chem. Commun.*, **2009**, *10*, 1207-1209.

9. *Molecular Gradients of Bio-inertness Reveal Mechanistic Difference between Mammalian Cell Adhesion and Bacterial Biofilm Formation* Erik A. Burton, Karen A. Simon, Shuyu Hou, Dacheng Ren* and Yan-Yeung Luk* *Langmuir*, **2009**, *25*, 1547-1553.

8. *Utilizing the high dielectric constant of water: efficient synthesis of amino acid-derivatized cyclobutenones* Jun Li, Yongbin Han, Teresa B. Freedman, Shifa Zhu, Deborah J. Kerwood and Yan-Yeung Luk*, *Tet. Lett.*, **2008**, *49*, 2128-2131.

7. *Chiral Molecules with Polyhedral T, O or I Symmetry: Theoretical Solution to A Difficult Problem in Stereochemistry* Sri Kamesh Narasimhan, Xiaoying Lu and Yan-Yeung Luk* *Chirality* **2008**, *20*, 878-884.

6. *Identifying the important structural elements of brominated furanones for inhibiting biofilm formation by Escherichia coli* Yongbin Han, Shuyu Hou, Karen A. Simon, Dacheng Ren* and Yan-Yeung Luk*, *Bioorg. Med. Chem. Lett.*, **2008**, *18*, 1006-1010.

5. *Water-Driven Chemoselective Reaction of Squarate Derivatives with Amino Acids and Peptides* Preeti Sejwal, Yongbin Han, Akshay Shah and Yan-Yeung Luk*, *Org. Lett.*, **2007**, *9*, 4897-4900.

4. *Enhancing Cell Adhesion and Confinement by Gradient Nanotopography* Karen A. Simon, Erik A. Burton, Yongbin Han, Jun Li, Anny Huang and Yan-Yeung Luk*, *J. Am. Chem. Soc.*, **2007**, *129*, 4892-4893.

3. *Water-in-Water Emulsions Stabilized by Non-Amphiphilic Interactions: Polymer-Dispersed Lyotropic Liquid Crystals* Karen A. Simon, Preeti Sejwal, Ryan B. Gerecht, Yan-Yeung Luk*, *Langmuir*, **2007**, *23*, 1453-8.

2. *A Biocompatible Surfactant with Folded Hydrophilic Head Group: Enhancing the Stability of Self-Inclusion Complexes of Ferrocenyl in a β -Cyclodextrin Unit by Bond Rigidity* Yongbin Han, Kejun Cheng, Karen A. Simon, Yanmei Lan, Preeti Sejwal, Yan-Yeung Luk*, *J. Am. Chem. Soc.*, **2006**, 128, 13913-20.

1. *Inhibiting Escherichia Coli Biofilm Formation by Self-Assembled Monolayers of Functional Alkanethiols on Gold* Shuyu Hou, Erik A. Burton, Karen A. Simon, Dustin Blodgett, Yan-Yeung Luk* and Dacheng Ren*, *Appl. Environ. Microbiol.* **2007**, 73, 4300-4307.

Manuscripts in preparation/submission

(The experimental work for all of the following manuscripts is either done or in revision in response to reviewers' comments).

12. *Protein-Laden Hydrogel Supporting Reversible Binding Events: A Three-Dimensional Reusable Biosensor that Allows Rigorous Quantification* Erik A. Burton, Karen A. Simon and Yan-Yeung Luk* **In preparation**

11. *Modifying Proteins with Organic Kosmotropes Prevents Protein Aggregation* Deepali Prashar, DaWei Cui and Yan-Yeung Luk* **In preparation**

10. *Enhanced Mammalian Cell Adhesion Mediated by Squaramide Derivatives* Sri Kamesh Narasimhan, Preeti Sejwal and Yan-Yeung Luk* **Submitted**

9. *Principles for Amphiphile-Free Templated Synthesis* Karen A. Simon, Erik A. Burton and Yan-Yeung Luk* **In preparation**

8. *Squarayed Homoserine Lactone: A Class of Non-Halogenated Inhibitor for Biofilm Formation* Sri Kamesh Narasimhan, Eric A. Falcone and Yan-Yeung Luk* **In preparation**

7. *Stereochemical Control of Mammalian Cell Adhesion Surfaces Presenting Chiral Polyols* Debjyoti Bandyopadhyay, Deepali Prashar and Yan-Yeung Luk* **In preparation**

6. *Anti-Fouling Chemistry by Chiral Monolayers: Enhancing Biofilm Resistance on Racemic Surface* Debjyoti Bandyopadhyay, Deepali Prashar and Yan-Yeung Luk* **In preparation**

5. *Controlling Mammalian Cell Adhesion on Hydrogel Materials: Bio-inertness of organic kosmotropes* Debjyoti Bandyopadhyay#, Preeti Sejwal#, Deepali Prashar and Yan-Yeung Luk* **In preparation**

4. *Crystallizing Proteins by Nonamphiphilic Liquid Crystals: Correlation between Mesophase and Protein Assembly* Karen A. Simon, Eric Falcone, Lei Wu, Ulrich Englich, Yan-Yeung Luk* **In preparation**

3. *Crystallization of Proteorhodopsin Membrane Complex Promoted by Nonamphiphilic Liquid Crystals.* Karen A. Simon, Laura Pate, Lei Wu, Ulrich Englich, Hongjun Liang* and Yan-Yeung Luk* **In preparation**

2. *Chemoselective Reactions of Unnatural Molecules in Water: Water-Driven Soft Coupling* DaWei Cui, Yan-Yeung Luk* **In preparation**

1. *Vesicle Formation by Micelle Surfactants: Spontaneous Assembly of Amphiphilic and Nonamphiphilic Lyotropic Liquid Crystal in Water* Nisha Varghese, Gauri Shetye, Debjyoti Bandyopadhyay, Nemaal Gobalasingham, Barbara Theiler, Yan-Yeung Luk * **In preparation**

PUBLICATIONS FROM Ph.D. AND POSTDOCTORAL PERIODS

1. Luk, Y.-Y. and N.L. Abbott, *Surface-Driven Switching of Liquid Crystals Using Redox-Active Groups on Electrodes*. Science, 2003. **301**(5633): p. 623-626.
2. Luk, Y.-Y., M. Kato, and M. Mrksich, *Self-Assembled Monolayers of Alkanethiolates Presenting Mannitol Groups Are Inert to Protein Adsorption and Cell Attachment*. Langmuir, 2000. **16**(24): p. 9604-9608.
3. Luk, Y.-Y., M.L. Tingey, K.A. Dickson, R.T. Raines, and N.L. Abbott, *Imaging the Binding Ability of Proteins Immobilized on Surfaces with Different Orientations by Using Liquid Crystals*. J. Am. Chem. Soc., 2004. **126**(29): p. 9024-9032.
4. Luk, Y.-Y., C.-H. Jang, L.-L. Cheng, B.A. Israel, and N.L. Abbott, *Influence of lyotropic liquid crystals on the ability of antibodies to bind to surface-immobilized antigens*. Chem. Mater., 2005. **17**(19): p. 4774-4782.
5. Luk, Y.-Y., M.L. Tingey, D.J. Hall, B.A. Israel, C.J. Murphy, P.J. Bertics, and N.L. Abbott, *Using liquid crystals to amplify protein-receptor interactions: Design of surfaces with nanometer-scale topography that present histidine-tagged protein receptors*. Langmuir, 2003. **19**(5): p. 1671-1680.
6. Luk, Y.-Y. and N.L. Abbott, *Applications of functional surfactants*. Curr. Opin. Colloid Interface Sci., 2002. **7**(5,6): p. 267-275.
7. Luk, Y.-Y., S. Campbell, N. Abbott, and C. Murphy, *Non-toxic thermotropic liquid crystals for use with mammalian cells*. Liq. Cryst., 2004. **31**(5): p. 611-621.
8. Luk, Y.-Y., K.-L. Yang, K. Cadwell, and N.L. Abbott, *Deciphering the interactions between liquid crystals and chemically functionalized surfaces: Role of hydrogen bonding on orientations of liquid crystals*. Surf. Sci., 2004. **570**(1-2): p. 43-56.
9. Luk, Y.-Y., N.L. Abbott, J.N. Crain, and F.J. Himpsel, *Dipole-induced structure in aromatic-terminated self-assembled monolayers - A study by near edge x-ray absorption fine structure spectroscopy*. J. Chem. Phys., 2004. **120**(22): p. 10792-10798.
10. Brake, J.M., M.K. Daschner, Y.-Y. Luk, and N.L. Abbott, *Biomolecular Interactions at Phospholipid-Decorated Surfaces of Liquid Crystals*. Science, 2003. **302**(5653): p. 2094-2098.
11. Tingey, M.L., Y.-Y. Luk, and N.L. Abbott, *Orientations of liquid crystals on chemically functionalized surfaces that possess gradients in nanometer-scale topography*. Adv. Mater., 2002. **14**(17): p. 1224-1227.
12. Cheng, L.-L., Y.-Y. Luk, C.J. Murphy, B.A. Israel, and N.L. Abbott, *Compatibility of lyotropic liquid crystals with viruses and mammalian cells that support the replication of viruses*. Biomaterials, 2005. **26**(34): p. 7173-7182.
13. Tercero Espinoza, L.A., K.R. Schumann, Y.-Y. Luk, B.A. Israel, and N.L. Abbott, *Orientational Behavior of Thermotropic Liquid Crystals on Surfaces Presenting Electrostatically Bound Vesicular Stomatitis Virus*. Langmuir, 2004. **20**(6): p. 2375-2385.

14. Li, H., Y.-Y. Luk, and M. Mrksich, *Catalytic Asymmetric Dihydroxylation by Gold Colloids Functionalized with Self-Assembled Monolayers*. Langmuir, 1999. **15**(15): p. 4957-4959.
15. Himpsel, F.J., J.L. McChesney, J.N. Crain, A. Kirakosian, V. Perez-Dieste, N.L. Abbott, Y.-Y. Luk, P.F. Nealey, and D.Y. Petrovykh, *Stepped Silicon Surfaces as Templates for One-Dimensional Nanostructures*. J. Phys. Chem. B, 2004. **108**(38): p. 14484-14490.
16. Zheng, F., V. Perez-Dieste, J.L. McChesney, Y.-Y. Luk, N.L. Abbott, and F.J. Himpsel, *Detection and switching of the oxidation state of Fe in a self-assembled monolayer*. Surf. Sci., 2005. **587**(3): p. L191-L196.

PATENTS

1. *Enhanced Bio-Assays by Using Gradient Nanotopography* Inventors: Y.-Y. Luk, K. A. Simons, E. A. Burton (Syracuse University); (Filed 2006).
2. *A new class of antagonists for integrin proteins as therapeutic agents* Inventors: Y.-Y. Luk, S. Zhu, P. Sejwal, (Syracuse University); filed.
3. *Biocatalytic Materials Built by Water-in-Water Emulsion* Inventors: Y.-Y. Luk, Karen A. Simon, Dacheng Ren, (Syracuse University); (submitted 2007).
4. *Squarayed Homoserine Lactone: A Class of Non-Halogenated Inhibitor for Biofilm Formation*.
5. *Prevention of Protein Aggregation by Modifying Proteins with Organic Kosmotropes*