

Peer-reviewed publications (as an independent Principal Investigator at SU):

1. *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(18), 7023-7033.
2. *Inhibition of of Candida albicans Growth by Natural and Synthetic Brominated Furanones* Miao Duo, Yan-Yeung Luk\*, and Dacheng Ren\* *Appl. Microbiol. Biotechnol.* **2009**, **Accepted**
3. *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(17), 6843-6846.
4. *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.
5. *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.
6. *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.
7. *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.
8. *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.
9. *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.
10. *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.

11. *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.
12. *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.
13. *A Biocompatible Surfactant with Folded Hydrophilic Head Group: Enhancing the Stability of Self-Inclusion Complexes of Ferrocenyl in a  $\beta$ -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.
14. *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.
15. *Enhanced Mammalian Cell Adhesion Mediated by Squaramide Derivatives* Sri Kamesh Narasimhan, Preeti Sejwal and Yan-Yeung Luk\* **Submitted**
16. *Principles for Amphiphile-Free Templated Synthesis: Structural Hierarchy and Biocatalysis* Karen A. Simon, Erik A. Burton and Yan-Yeung Luk\* **Submitted**
17. *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\* **Submitted**
18. *Stereochemical Control of Mammalian Cell Adhesion and Biofilm Formation on Surfaces Presenting Chiral Polyols* Debjyoti Bandyopadhyay, Deepali Prashar and Yan-Yeung Luk\* **in preparation.**
19. *Controlling Mammalian Cell Adhesion on Hydrogel Materials: Bio-inertness of organic kosmotropes* Debjyoti Bandyopadhyay#, Preeti Sejwal#, Deepali Prashar and Yan-Yeung Luk\* **in preparation.**
20. *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.**
21. *Assembly 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.**

## Patents:

1. "Surface Modifying Composition for Biochip Preparations" WO0230885  
Y.-Y. Luk, co-inventor (with M. Mrksich, U of Chicago)
2. "Liquid Crystal Switching Mechanism" US Patent No. 6824837; WO03021339  
Y.-Y. Luk, co-inventor (with N. L. Abbott, UW-Madison)
3. "Metalized Substrates with Surface Topography Gradients for Forming of Liquid Crystals"  
Y.-Y. Luk, co-inventor (with M. L. Tingey & N. L. Abbott, UW-Madison)
4. "Liquid Crystals with Reduced Toxicity and Applications Thereof"  
Y.-Y. Luk, co-inventor (with C. J. Murphy, S. F. Campbell, L.-L. Cheng, C.-H. Jang & N. L. Abbott, UW-Madison)
5. "Enhanced Bio-Assays by Using Gradient Nanotopography"  
Inventors: Y.-Y. Luk, K. A. Simons, E. A. Burton, (Filed at SU).
6. "A new class of integrin antagonists as therapeutic agents"  
Inventors: Y.-Y. Luk, S. Zhu, P. Sejwal, (Started at SU)
7. "Biocatalytic Materials Built by Water-in-Water Emulsion",  
Inventor Yan-Yeung Luk, Karen A. Simon, Dacheng Ren, (submitted in 2007).

## Peer-reviewed publications before SU:

1. *Self-Assembled Monolayers of Alkanethiolates Presenting Mannitol Groups Are Inert to Protein Adsorption and Cell Attachment*  
**Y.-Y. Luk**, M. Kato & M. Mrksich, **2000**, *Langmuir*, *16*, 9604-8.
2. *Surface-Driven Switching of Liquid Crystals using Redox-Active Groups on Electrodes*  
**Y.-Y. Luk** & N. L. Abbott, **2003**, *Science*, *301*, 623-6.\*
3. *Imaging of the Binding Activity of Proteins Immobilized on Surfaces with Different Orientations by Using Liquid Crystals*  
**Y.-Y. Luk**, M. L. Tingey, K. A. Dickson, R. T. Raines & N. L. Abbott, **2004**, *J. Am. Chem. Soc.*, *126*, 9024-32.

4. *Using Liquid Crystals to Amplify Protein-Receptor Interactions: Design of Surfaces with Nanometer-Scale Topography that Present Histidine-Tagged Protein Receptors*  
**Y.-Y. Luk**, M. L. Tingey, D. J. Hall, P. J. Bertics & N. L. Abbott, **2003**, *Langmuir*, *19*, 1671-80.
5. *Non-Toxic Thermotropic Liquid Crystals for Use with Mammalian Cells*  
**Y.-Y. Luk**, S. F. Campbell, C. J. Murphy & N. L. Abbott, **2004**, *Liq. Cryst.*, *31*, 611-21.
6. *Dipole-Induced Structure in Aromatic-terminated Self-Assembled Monolayer – A Study by Near Edge X-ray Absorption Fine Structure Spectroscopy*  
**Y.-Y. Luk**, J. N. Crain, F. J. Himpsel & N. L. Abbott, **2004**, *J. Chem. Phys.*, *120*, 10792-8.
7. *Deciphering the Interactions between Liquid Crystals and Chemically Functionalized Surfaces: Role of Hydrogen Bonding on Orientations of Liquid Crystals*  
**Y.-Y. Luk**, K.-L. Yang, K. Cadwell & N. L. Abbott, **2004**, *Surf. Sci.*, *570*, 43-56.
8. *Influence of Lyotropic Liquid Crystals on the Ability of Antibodies to Bind to Surface-Immobilized Antigens*  
**Y.-Y. Luk**, C.-H. Jang, L.-L. Cheng & N. L. Abbott, **2005**, *Chem. Mater.*, *17*, 4774-82.
9. *Compatibility of lyotropic liquid crystals with viruses and mammalian cells that support the replication of viruses*  
L.-L. Cheng, **Y.-Y. Luk**, C. J. Murphy, B. A. Israel & N. L. Abbott, **2005**, *Biomaterials*, *26*, 7173-82.
10. *Biomolecular Interactions at Phospholipid-Decorated Surfaces of Thermotropic Liquid Crystals*  
J. M. Brake, M. K. Daschner, **Y.-Y. Luk** & N. L. Abbott, **2003**, *Science*, *302*, 2094-8.\*\*
11. *Orientations of Liquid Crystals on Chemically Functionalized Surfaces that Possess Gradients in Nanometer-Scale Topography*  
M. L. Tingey, **Y.-Y. Luk** & N. L. Abbott, **2002**, *Adv. Mater.*, *14*, 1224-7.
12. *Catalytic Asymmetric Dihydroxylation by Gold Colloids Functionalized with Self Assembled Monolayers*  
H. Li, **Y.-Y. Luk** & M. Mrksich, **1999**, *Langmuir*, *15*, 4957-9.
13. *Orientational Behavior of Thermotropic Liquid Crystals on Surfaces Presenting Electrostatically-Bound Vesicular Stomatitis Virus*  
L. A. Tercero Espinoza, K. R. Schumann, **Y.-Y. Luk**, B. A. Israel & N. L. Abbott, **2004**, *Langmuir*, *20*, 2375-85.
14. *Stepped Silicon Surfaces as Templates for One-Dimensional Nanostructures*

F. J. Himpsel, J. N. Crain, A. Kirakosian, J. L. McChesney, V. Pérez-Dieste, N. L. Abbott, **Y.-Y. Luk**, D. Y. Petrovykh, L. Whitman & M. Tarlov, **2004**, *J. Phys. Chem. B*, 38, 14484-90.

15. *Detection and Switching of the Oxidation State of Fe in a Self-Assembled Monolayer* F. Zheng, V. Perez-Dieste, J. L. McChesney, Y.-Y. Luk, N. L. Abbott, F. J. Himpsel, **2005**, *Surf. Sci. Letters*, 587, L191-6.

*Invited publications:*

16. *Application of Functional Surfactants*  
**Y.-Y. Luk** & N. L. Abbott, **2002**, *Curr. Opin. Colloid Interface Sci.*, 7, 267-75.
17. (Book Chapter) “*Biosurfaces: the Significance of Water Structure at Interfaces*”  
**Y.-Y. Luk**, *Encyclopedia of Nanoscience and Nanotechnology*, Editors: J. A. Schwarz, C. Contescu & K. Putyera (Marcel Dekker, Inc., NY), **2004**, 389-403.
18. (Book Chapter) “*Liquid Crystals and Nanostructured Surfaces – A Novel System for Detecting Protein Binding Events*” **Y.-Y. Luk**, *Encyclopedia of Nanoscience and Nanotechnology*, Editors: J. A. Schwarz, C. Contescu & K. Putyera (Marcel Dekker, Inc., NY), **2004**, 1635.