

**H. Surangi N. Jayawardena**  
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Department of Chemistry  
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## SUMMARY

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- Ph.D. Chemistry – surface chemistry modifications of colloidal systems for biological applications

## EDUCATION

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Postdoctoral Experience Massachusetts Institute of Technology	November 2014 – August 2017 Cambridge, MA
Ph.D. Chemistry (GPA 4.0) University of Massachusetts, Lowell	September, 2009 - November 2014 Lowell, MA
B. Sc. (Hons.) Chemistry University of Colombo	May 2004 – June 2008 Colombo, Sri Lanka

## RESEARCH EXPERIENCE

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<b>Postdoctoral Experience (Key Research)</b> Massachusetts Institute of Technology	November 2014 – August 2017 Cambridge, MA
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*P.I Prof. Robert Langer*

On patient vaccine record system- funded by Bill and Melinda Gates Foundation

- Development of a photostable and chemically inert fluorescent code system using near infrared fluorescing quantum dots, that are applied subcutaneously using a microneedle patch, where the signal could be detected through the skin and analyzed by a smart phone application.

Vaccine formulation and degradation studies - funded by Bill and Melinda Gates Foundation

- Screening of novel thermostabilizing excipient formulation to store Sabin oral polio vaccine serotypes T1, T2 and T3 at 37 °C to eliminate need for cold storage facilities.

### **Ph.D. Doctoral Research (Key Research)**

University of Massachusetts, Lowell

*P.I and Ph.D. Advisor Prof. Mingdi Yan*

- Synthesis of novel carbohydrate and antibiotic conjugated nanomaterial – glyconanomaterials and glyconanoantibiotics to strain specifically target bacteria and deliver antibiotics.
- Use of glyconanomaterials in patterning carbohydrate arrays for proteins.

## AWARDS

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1. Tripathy Memorial Summer Graduate Fellowship – 2014 - University of Massachusetts Lowell
2. College of Science – Outstanding Graduate Research Award – Chemistry, 2014 - University of Massachusetts Lowell

## PUBLICATIONS

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1. Chen, X.; Wu, B.; Jayawardana, K. W.; Hao, N.; **Jayawardena, H. S. N.**; Langer R.; Jaklenec, A.; Yan, M. Magnetic multivalent trehalose glycopolymer nanoparticles for the detection of mycobacteria, *Adv. Healthc. Mater.* **2016**.
2. Zhang, Y.; **Jayawardena, H. S. N.**; Yan, M.; Ramstrom, O. Enzyme classification using complex dynamic hemithioacetal systems. *Chem. Commun.* **2016**.
3. Sundhoro, M.; Wang, H.; Boiko, S. T.; Chen, X.; **Jayawardena, H. S. N.**; Park, J.; Yan, M. Fabrication of carbohydrate microarrays on a poly (2-hydroxyethyl methacrylate)-based photoactive substrate. *Organic & biomolecular chemistry* **2016**, *14*, 1124-1130.
4. Park, J.; **Jayawardena, H. S. N.**; Chen, X.; Jayawardana, K.; Sundhoro, M.; Ada, E.; Yan, M. A General Method for the Fabrication of Graphene-Nanoparticle Hybrid Material. (2015) *Chem. Commun.* **2015**, *51*, 2882–2885
5. Jayawardana, K. W.; **Jayawardena, H. S. N.**; Wijesundera, S. A.; De Zoysa, T.; Sundhoro, M.; Yan, M. Selective targeting of Mycobacterium smegmatis with trehalose-functionalized nanoparticles. *Chem. Commun.* **2015**, *51*, 12028-12031.
6. Zhou, J.; Butchosa, N.; **Jayawardena, H. S. N.**; Park, J.; Zhou, Q.; Yan, M.; Ramström, O. Synthesis of Multifunctional Cellulose Nanocrystals for Lectin Recognition and Bacterial Imaging. *Biomacromolecules* **2015**, *16*, 1426-1432.
7. Park, J.; **Jayawardena, H. S. N.**; Chen, X.; Jayawardana, K. W.; Sundhoro, M.; Ada, E.; Yan, M. A general method for the fabrication of graphene-nanoparticle hybrid material. *Chem. Commun.* **2015**, *51*, 2882-2885.
8. Zhou, J.; Butchosa, N.; **Jayawardena, H. S. N.**; Zhou, Q.; Yan, M.; Ramström, O. Glycan-Functionalized Fluorescent Chitin Nanocrystals for Biorecognition Applications. *Bioconjugate Chem.* **2014**, *25*, 640-643.
9. Chaudhary, S.; Kamra, T.; Uddin, K. M. A.; Snezhkova, O.; **Jayawardena, H. S. N.**; Yan, M.; Montelius, L.; Schnadt, J.; Ye, L. Controlled short-linkage assembly of functional nano-objects. *Appl. Surf. Sci.* **2014**, *300*, 22-28.
10. **Jayawardena, H. S. N.**; Wang, X.; Yan, M. Classification of Lectins by Pattern Recognition Using Glyconanoparticles. *Anal. Chem.* **2013**, *85*, 10277-10281.
11. **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X.; Yan, M.: Maltoheptaose promotes nanoparticle internalization by *Escherichia coli*. *Chem. Commun.* **2013**, *49*, 3034-3036.
12. Xu, C.; Uddin, K. M. A.; Shen, X.; **Jayawardena, H. S. N.**; Yan, M.; Ye, L. Photoconjugation of Molecularly Imprinted Polymer with Magnetic Nanoparticles. *ACS Appl. Mater. Interfaces* **2013**, *5*, 5208-5213.

## PATENTS

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1. Yan, M.; Wang, X.; **Jayawardena, H. S. N.** Method of making and using fluorescent-tagged nanoparticles and microarrays. US Patent WO2012071461A2, 2012.
2. Yan, M.; **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X. Glucose Enhances Cellular Uptake of Nanoparticles in Mammalian Cells. US Provisional Patent USSN 61781017, 2013.
3. Yan, M.; **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X. Maltoheptaose Promotes Internalization of Nanoparticles in *Escherichia coli*. US Povisional Patent USSN 61766176, 2012

## SELECTED PRESENTATIONS

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1. **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X.; Yan, M.: Maltoheptaose promotes nanoparticle internalization by *Escherichia coli*. 245<sup>th</sup> ACS National Meeting. New Orleans, Louisiana, April 9, 2013.
2. **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X.; Yan, M.: Maltoheptaose promotes nanoparticle internalization by *Escherichia coli*. UMass Center for Clinical and Translational Science 4<sup>th</sup> Annual Research Retreat, University of MA Medical School, Massachusetts, May 8, 2013.
3. **Jayawardena, H. S. N.**; Jayawardana, K. W.; Chen, X.; Yan, M.: Maltoheptaose promotes nanoparticle internalization by *Escherichia coli*. Gordon Research Conference, Microbial Adhesion & Signal Transduction, Newport, Rhode Island, June 23, 2013.
4. **Jayawardena, H. S. N.**; De Zoysa, T.; Jayawardana, K. W.; Boiko, S. T.; Yan, M. Enhancing Antibioitic Activity Using Nanomaterial Antibioitic Conjugates. UMass Center for Clinical and Translational Science 5<sup>th</sup> Annual Research Retreat, University of MA Medical School, Massachusetts, May 20, 2014.

