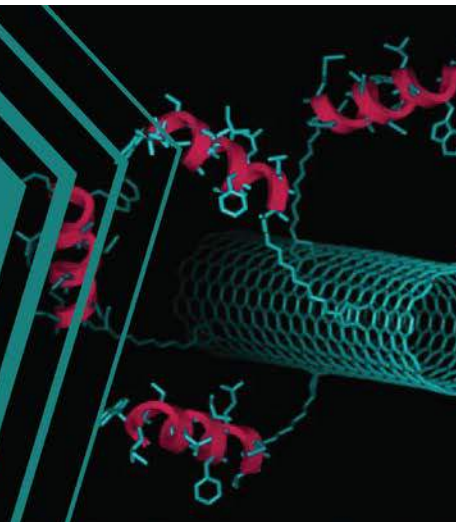


NANOBIO SUMMIT 2015

University of Alabama at Birmingham
October 15-16



UAB Alumni House
and the
Abroms-Engel Institute for the Visual Arts
Birmingham, Alabama

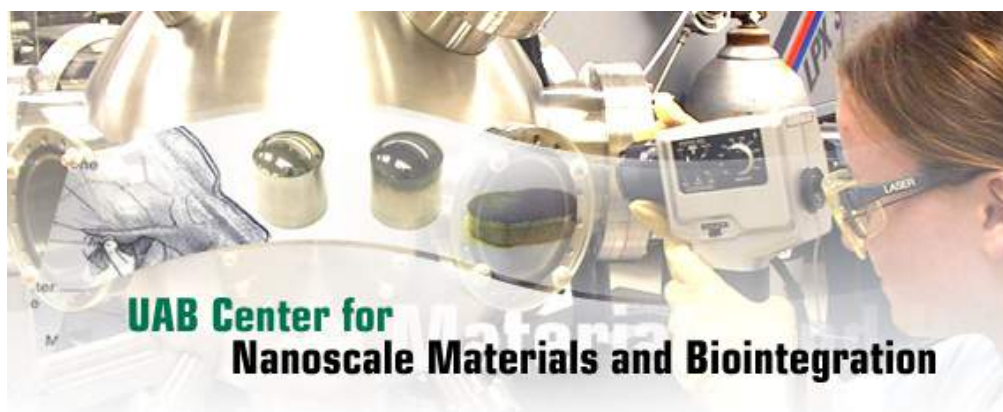
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Dr. Vinoy Thomas
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NanoBio SUMMIT 2015

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STATE OF ALABAMA

October 15, 2015

Greetings:

On behalf of the State of Alabama, I would like to welcome you to the 2015 NanoBio Summit hosted by the UAB College of Arts and Sciences and the UAB Center for Nanoscale Materials and Biointegration.

The goal of the Summit is to promote a research alliance among scientists from institutions and industries throughout the state and nation in advancing Alabama's prominence among the leaders of nanobiotechnology research and education. This scholarly event will feature distinguished guest speakers and will showcase innovative scientific research and implementation in nanobiotechnology.



I would like to recognize the students who are participating in this year's Summit. Your presentations will be among the many highlights of this year's event and I am certain that the Summit will provide lasting and rewarding educational experiences.

Again, welcome to the 2015 NanoBio Summit and best wishes for a memorable event.

Sincerely,

A handwritten signature of Robert Bentley in black ink. The signature is written in a cursive style and is positioned above the printed name and title.

Robert Bentley
Governor

RB/pb/dr

October 1, 2015

Greetings,

On behalf of the UAB College of Arts and Sciences (CAS), I would like to extend my warmest welcome to those of you who are participating in the Third-Annual NanoBio Summit to be held on the UAB Campus during October 15-16, 2015. This summit is a joint effort between UAB, Alabama State University, Alabama A & M University, Auburn University, The University of Alabama, Tuskegee University, the University of Alabama in Huntsville, and the University of South Alabama.

This is truly an interdisciplinary summit with over 140 participants representing various aspects of nanoscience and nanotechnology in biology and medicine. The plenary and invited speakers covers a wide range of topics in nanomaterials and the application of nanotechnology tools in brain science, biomedical implants, lung disease, antimicrobial resistance and other biological systems. I am particularly pleased with the strong participation of undergraduates and graduate students who will be presenting talks and posters at this meeting.



I hope you enjoy your stay in Birmingham and make time to explore our vibrant city and our beautiful campus, including the Abroms-Engel Institute for the Visual Arts (AEIVA), which will be exhibiting large-scale images of American landscapes by the renowned photographer David Maisel during your visit to UAB.

I wish you a very productive meeting and am sure that this NanoBio summit will enhance interdisciplinary collaborations in the field of nanotechnology in biology and medicine for all involved.

Sincerely,

A handwritten signature in black ink, reading "R. E. Palazzo". The signature is stylized with a large, sweeping initial "R" and a long, horizontal flourish extending to the right.

Robert E. Palazzo, Ph.D.
Dean

Office of the Dean
560 Heritage Hall
1401 University Boulevard
205.934.5643
Fax 205.934.9896

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1720 2ND AVE S
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Knowledge that will change your world

UAB Center for Nanoscale Materials and Biointegration (CNMB)

Director, Yogesh K. Vohra, PhD

Professor & University Scholar

Department of Physics

October 1st, 2015

Greetings,

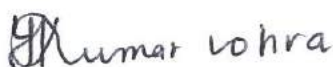
I am pleased to welcome you to the 3rd annual NanoBio Summit 2015 to be held on the University of Alabama at Birmingham (UAB) campus during October 15-16, 2015. This summit is jointly sponsored by the eight major universities in the State of Alabama and brings together expertise in biology, chemistry, engineering, materials, medicine and physics. We are particularly pleased with the participation of internationally renowned plenary and invited speakers that will highlight recent advances in nanoscience and nanotechnology tools and their applications in biology and medicine.



The advances in nanoscience and nanotechnology are driven by interdisciplinary teams of researchers who bring complementary expertise in nano-materials synthesis and characterization, cellular interactions with nanoparticles to address problems of high clinical significance. This NanoBio summit program reflects this interdisciplinary flavor and provides opportunities for new innovations in this field.

We hope that this NanoBio Summit will give faculty, students, and staff opportunity to network with invited experts and provide collaborative research opportunities that will have a longer-lasting impact on nanoscience and nanotechnology research in Alabama.

Sincerely,



Yogesh K. Vohra, Ph.D.

Professor University Scholar

Department of Physics

Associate Dean, UAB College of Arts and Sciences

Plenary Speakers

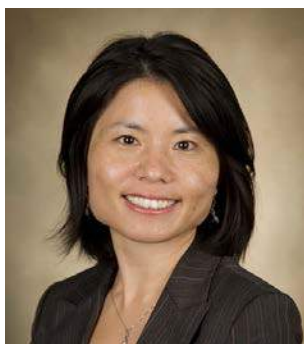


Dr. Charles Lieber
Chair, Department of Chemistry
Harvard University



Dr. Paul Weiss
Distinguished Professor of Chemistry, Biochemistry
and Materials Science and Engineering
California NanoSystems Institute

Invited Speakers



Dr. Yuping Bao
Associate Professor
University of Alabama



Dr. Aaron Catledge
Assistant Professor, Physics
University of Alabama at
Birmingham



Dr. William Gerthoffer
Professor and Chair,
Biochemistry and
Molecular Biology
University of South
Alabama



Dr. Robert Haddon
Distinguished Professor,
Chemical &
Environmental Eng.
University of California
Riverside



Dr. Valeria Tohver Milam
Associate Professor, Materials Science &
Engineering
Georgia Institute of Technology

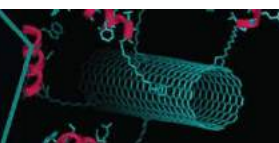


Dr. Shreekumar Pillai
Assistant Professor, Biology
Alabama State University



Dr. Sergey Sheiko
Distinguished Professor, Chemistry
University of North Carolina
Chapel Hill

NANOBIO SUMMIT | 2015



**Program for NANOBIO Summit
October 15-16, 2015
University of Alabama at Birmingham (UAB)**

Thursday - October 15th, 2015

UAB Alumni House	
7:30 a.m. – Noon	Registered Guest Check-in
7:30 a.m. – 8:45 a.m.	Continental Breakfast
9:00 a.m.	<p>Introductions –Yogesh Vohra</p> <p>Welcome Remarks by Dean Robert Palazzo, UAB Provost Linda Lucas and VP Dick Marchase</p>
9:30 a.m. – 10:30 a.m.	<p>Plenary Talk I – Session Chair – Dr. Yogesh K. Vohra</p> <p>Dr. Charles Lieber, Harvard University “Nanoelectronic Tools for Brain Science”</p>
10:30 a.m. – 10:45 a.m.	Coffee Break
10:45 a.m. – 11:30 a.m.	<p>Session I – Session Chair – Dr. Vladimir Parpura</p> <p>Dr. Robert Haddon, University of California, Riverside “Applications of Carbon Nanotubes in Biology and Medicine”</p>
11:30 a.m. – 12:15 pm.	<p>Contributed Talks – Session I</p> <p>Dr. Daneesh Simien: Sorting of Single Walled Carbon Nanotubes En Route to Exploring Nano-scale Molecular Cloaking in Hydrocarbon Based Structures</p> <p>Manoj Gottipati: Probing Astrocytes with Carbon Nanotubes and Assessing Their Effects on Astrocytic Structural and Functional Properties</p>
Abroms-Engel Institute for the Visual Arts	
10:45 a.m. – 11:30 a.m.	<p>Session II - Session Chair – Dr. Shree Singh</p> <p>Dr. Shreekumar Pillai, Alabama State University “Nanotechnology based approaches to counter antimicrobial resistance”</p>
11:30 a.m. – 12:15 pm.	<p>Contributed Talks – Session II</p> <p>R. Jayachandra Babu: Formulation of Genistein Nanoemulsion for Enhanced Transdermal Delivery</p> <p>Sumit Arora: Preclinical evaluation of chemopreventive efficacy of silver nanoparticles against ultraviolet radiation-induced skin carcinogenesis.</p>
UAB Alumni House	
12:15 p.m. – 1:30 p.m.	Lunch
1:30 p.m. – 2:15 p.m.	<p>Session III - Session Chair – Dr. Namasivayam Ambalavanan</p> <p>Dr. William Gerthoffer, University of South Alabama “Lipid nanoparticles in RNAi-based therapy of lung diseases”</p>
2:15 p.m. – 3:00 p.m.	<p>Contributed Talks – Session III</p> <p>Dieudonné R Baganizi: Functionalized Gold and Silver Nanoparticles inhibit Respiratory Syncytial Virus (RSV)</p> <p>Budhwani, Karim I.: Lab-On-a-Brane: A Novel Nanofluidics Biomimetic Platform for Pharmacokinetic Evaluation</p>

Abroms-Engel Institute for the Visual Arts	
1:30 p.m. – 2:15 p.m.	Session IV - Session Chair – Dr. Robert D. Arnold Dr. Aaron Catledge, University of Alabama at Birmingham “Nanostructured Diamond for use in Biomedical Devices”
2:15 p.m. – 3:00 p.m.	Contributed Talks – Session IV Muhammed S. Khan: Hybrid Nanopore Biosensor: In Vitro Label-Free Electrochemical Detection of Epithelial Na ⁺ Channel Matthew Noor: Comparing covalent and non-covalent lysozyme functionalized single-walled carbon nanotubes
3:00	Poster setup at Abroms-Engel Institute for the Visual Arts
3:30 p.m. – 5:00 p.m.	Poster Session – Session Chairs - Session Chairs – Dr. Ajay Singh and Dr. Yogesh Vohra
UAB Alumni House	
6:30 p.m.	Conference Banquet/Awards

Friday - October 16, 2015

UAB Alumni House	
7:30 a.m. – 9 am	Registered Guest Check-in
7:30 a.m. – 8:45 a.m.	Continental Breakfast
9:00 a.m. – 10:00 a.m.	Plenary Talk II – Session Chair - Dr. Ho-Wook Jun Dr. Paul Weiss, University of California, Los Angeles “Nanoscience Approaches to Heterogeneity in Biological Systems”
10:00 a.m. – 10:15 a.m.	Coffee Break
10:15 a.m. – 11:00 a.m.	Session V – Session Chair – Dr. Mahesh Hosur Dr. Sergey Sheiko, University of North Carolina Chapel Hill “From superflexible molecules to supersoft and superelastic”
11:00 a.m. – 11:45 a.m.	Contributed Talks – Session V Jun Chen: Biocompatible Shaped Particle s from D ried Multilayer Polymer Capsules Patrick Hwang: The development of a bio-inspired hybrid nanosack for enhancing the efficacy of pancreatic islet transplantation in the omentum
Abroms-Engel Institute for the Visual Arts	
10:15 a.m. – 11:00 a.m.	Session VI - Session Chair – Dr. Patty Sobecky Dr. Yuping Bao, The University of Alabama “Nanomaterials – Biological Scaffolds”
11:00 a.m. – 11:45 a.m.	Contributed Talks – Session VI Dr. Vinoy Thomas: Drug eluting fibro-porous 3D tubular conduits for vascular graft applications Casey Durfey: Incorporation of nanoparticles within mammalian spermatozoa using in vitro capacitation

UAB Alumni House	
11:45 a.m. – 1:00 p.m.	Lunch – UAB Alumni House
1:00 p.m. – 1:45 p.m.	<p>Session VII – Session Chair – Dr. Eugenia Kharlampieva</p> <p>Dr. Valeria Milam, Georgia Tech</p> <p>“A faster, yet reliable non-SELEX screening approach to identify DNA aptamers for non-nucleotide targets”</p>
1:45 p.m. – 2:30 pm	<p>Graduate/Undergraduate Presentations</p> <p>Seantel Hopkins: Effects of Non-Aggregating Chemically Functionalized Carbon Nanotubes on the Morphology of Astrocytes and D54 Human Glioma Cells</p> <p>Chemar Huntley: The Influence of Strong Acid Hydrolyses on the Crystal Structure and Thermal Stability of Cellulose Fibers</p> <p>Ejovwoke Dosunmu: The antimicrobial and transcriptional effect of AgCNTs on Pseudomonas aeruginosa</p>
2:30 p.m.	Conclusion

ABSTRACT

Nanoelectronic Tools for Brain Science

Charles M. Lieber

Department of Chemistry and Chemical Biology, and Harvard John A. Paulson School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138 USA

Nanoscale materials enable unique opportunities at the interface between the physical and life sciences, for example, by integrating nanoelectronic devices with cells and/or tissue to make possible communication at the length scales relevant to biological function. In this presentation, the development of nanowire-based nanoelectronic devices and their application as powerful tools for the recording and stimulation from the level of single cells to tissue will be discussed. First, we will introduce key constraints for developing electronic devices for biological studies, our focus on ‘active’ nanoelectronic devices, and comparison of these to other electrophysiology tools to illuminate strengths/weaknesses and opportunities. Second, the creation of new nanoelectronic probes capable of intracellular recording and stimulation at scales heretofore not possible will be discussed. Recent results from ongoing studies of neuronal systems will be described. Third, we will take an ‘out-of-the-box’ look and consider merging nanoelectronic arrays and circuits with the brain in three-dimensions (3D). We will describe a new method by which freestanding macroporous nanoelectronic networks can be delivered by syringe injection and subsequently ‘unfold’ to their originally designed geometric configuration. Studies focused on targeted injection into rodent brains will be described, including minimally invasive integration with neural networks that demonstrate unique neurophilic nature of these new structures. Multiplexed recording of brain activity from the addressable nanodevices will also be described. The prospects for broad-ranging applications in fundamental brain science research through applications as electronic therapeutics will be discussed.

ABSTRACT

Nanoscience Approaches to Heterogeneity in Biological Systems

Dr. Paul S. Weiss

¹Electrons, Photons, and Force: Quantitative Single-Molecule Measurements from Physics to Biology, S. A. Claridge, J. J. Schwartz, and P. S. Weiss, *ACS Nano* **5**, 693 (2011).

The great promise of single-molecule/assembly measurements is to understand how critical variations in structure, conformation, and environment relate to and control function.¹ New approaches to imaging and analysis are keys to elucidating these associations. I will discuss current and upcoming advances and will pose the challenges that lie ahead in creating, developing, and applying new tools for biology and medicine. These advances include fusing spectroscopic imaging modalities and freeing up bandwidth in measurements to record simultaneous data streams and to expand our dynamic range. Recent advances in sparsity and compressive sensing can be applied both to new analysis methods and to directing measurements so as to assemble and to converge structural and functional information. Early examples will be discussed.

ABSTRACT

Applications of Carbon Nanotubes in Biology and Medicine

Robert C Haddon

University of California at Riverside

Carbon nanotubes are high aspect ratio materials with outstanding electronic, photonic and structural properties that also lend themselves to chemical functionalization. Thus there are many scenarios where these chemically functionalized materials might find application in biology and medicine. Through a series of collaborations we have explored a number of these opportunities and in this talk I will review some of our results, including the use of carbon nanotubes in conjunction with neurons and astrocytes, bone, in spinal healing and the manipulation of carbon nanotubes by biological molecular motors such as kinesin.

ABSTRACT

Nanotechnology based approaches to counter antimicrobial resistance

Shreekumar Pillai, Assistant Professor, Biology

Center for Nanobiotechnology Research, Alabama State University, Montgomery, AL, USA

The emergence of multi-drug resistant strains of bacteria is a major problem for humanity. Noble metals such as silver and metal nanocomposites, especially silver coated carbon nanotubes (AgCNTs) have strong antimicrobial properties. However, their toxicity to eukaryotic cells of human origin limits their use as antimicrobials. Several mechanisms such as functionalization using non-toxic polymers such as poly ethylene glycol (PEG) or polyvinyl pyrrolidone (PVP); and bio-conjugation can be employed to reduce their toxicity. Another effective alternative is bio-conjugation, a method wherein nanoparticles are conjugated with a suitable biological entity such as DNA, RNA or antibacterial peptides. This presentation will focus on our current research on functionalization of AgCNTs and their bio-conjugation to develop antibacterial agents with reduced toxicity and enhanced antibacterial activity.

ABSTRACT

"Lipid nanoparticles in RNAi-based therapy of lung diseases"

William T. Gerthoffer, Ph.D.

Dept. Biochemistry, University of South Alabama

Therapies that exploit RNA interference (RNAi) hold great potential for improving disease outcomes. However, there are several challenges that limit the application of RNAi therapeutics. One of the most important challenges is effective delivery of oligonucleotides to target cells and reduced delivery to non-target cells. Functionalized cationic lipopolyamine nanoparticles (Therasilence, Celsion Corp.) were developed for in vivo delivery of siRNA to pulmonary vascular cells. Staramine enhances retention of siRNA in mouse lungs and achieves significant knockdown of target gene expression for at least 10 days following a single intravenous injection. To determine if this approach could be applied to treating pulmonary arterial hypertension (PAH) we identified microRNA targets for RNAi therapy of PAH from differential expression studies. Several microRNAs known to regulate cell proliferation, cell survival and cell fate are associated with development of PAH, including increased expression of microRNA-145 (miR-145). Since miR-145 regulates vascular smooth muscle differentiation, inflammation and stem cell differentiation it was identified as a valuable target for reversing PAH arteriopathy. Biodistribution and efficacy of an antisense miR-145 DNA/LNA mixmer (ASO-145) was determined in rats with Sugen-5416/Hypoxia induced severe pulmonary hypertension. After subchronic therapy of three injections over six weeks at 2mg/kg, ASO-145 accumulated in rat lung tissue and reduced expression of endogenous miR-145. Using a novel in situ hybridization approach, we demonstrated substantial distribution of ASO-145 in lungs as well as liver, kidney, and spleen, with lesser amounts in heart tissue. We assessed toxic effects of Therasilence/ASO-145 by complete blood count and serum metabolic panels, gross pathology, and histopathology. We did not detect any significant toxicities. ASO-145 reduced the degree of pulmonary arteriopathy, reduced the severity of pulmonary hypertension, and reduced the degree of cardiac dysfunction. The results establish the efficacy and low toxicity of lung-directed IV delivery of a miRNA-145 inhibitor using Staramine cationic lipopolyamine nanoparticles to repair pulmonary arteriopathy and improve cardiac function in rats with severe PAH.

ABSTRACT

Nanostructured Diamond for use in Biomedical Devices

Dr. Aaron Catledge

University of Alabama at Birmingham, Department of Physics

Diamond represents the extreme in several material properties, but trade-offs often exist for phase-pure or bulk diamond that precludes its use for many applications. I will discuss the potential of Nano-Structured Diamond (NSD) for use in biomedical implant and sensing devices. With increasing numbers of orthopedic devices being implanted, more and more emphasis is being placed on developing ceramic coating technology that can reduce the friction and wear in total joint replacement components, with hopes of significantly improving implant function and increasing device life span. As a wear-resistant coating on typical alloys used in orthopedic/dental devices, NSD presents unique advantages. I will address the inherent challenges we face in terms of achieving desired structure and mechanical properties of these coatings as well as our recent advances using plasma borided interlayers.

I will also discuss the development of novel nanodiamond/molecularly imprinted polymer “inks” printed as sub-picoliter dots using a scanning-probe lithography technique. Arrays of these dots have potential as molecular sensors or drug-delivery platforms. The incorporation of silicon-vacancy point defects using chemical vapor deposition to achieve far-red fluorescence in the nanodiamond has implications for sensing/imaging. Ultimately, we aim to demonstrate “label-free” detection in these fluorescent nanoparticle/MIP synthetic systems as an alternative to conventional molecular recognition-based (e.g. antibody) assays. The precise control in spatial arrangement of the MIP/fluorescent nanoparticle array paves the way for multiplexed photonic detection via fluorescence quenching or diffraction-based mechanisms.

ABSTRACT

From superflexible molecules to supersoft and superelastic materials

Sergei Sheiko

Distinguished Professor, Chemistry

University of North Carolina Chapel Hill

W. Daniel¹, M.V. Vatankeh², J. Burdyńska², K. Matyjaszewski², M. Rubinstein,¹ A. V. Dobrynin,³
S.S. Sheiko^{1*},

Soft elastic materials with a Young's modulus below 1 atm (100 kPa) are vital for the creation of biocompatible implants, substrates, and robots with mechanical properties matching that of biological cells, tissues, and organs. Currently, polymer gels are the only viable class of synthetic materials for low modulus applications, yet with a caveat: their properties are entirely dependent on the fraction of solvent in the system. Solvent is a potential source for various complications including phase separation, drying, and leakage upon deformation that not only compromise the gel elasticity, but may also elicit severe inflammatory response in surrounding tissues. Herein, we elucidate, both theoretically and experimentally, a concept for the design of super-soft and super-elastic solvent-free elastomers using bottlebrush macromolecules. The brush-like architecture facilitates disentanglement of polymer species and allows for effective reduction of the elastic modulus through synthetic control of bottlebrush architecture. This concept was verified for different types of bottlebrush systems (pBA melts and PDMS elastomers) and enabled an unprecedented combination of gel-like modulus down to 100 Pa and elastomer-like deformability.

ABSTRACT

Rationally-Designed Magnetic Nanostructures for Bioimaging

Yuping Bao, Associate Professor, University of Alabama

Chemical and Biological Engineering, The University of Alabama, Tuscaloosa, AL35487

Magnetic resonance imaging (MRI) offers a powerful, non-invasive tool for brain tumor imaging and therapy monitoring. The use of contrast agents significantly enhances the image contrasts, yielding better resolution. T1 positive contrast agents are mainly paramagnetic Gadolinium (Gd) complexes, which shorten the longitudinal relaxation time (T1) and generate a brighter image. T2 negative contrast agents, primarily superparamagnetic iron oxide nanoparticles, produce a darker image by shortening the transverse relaxation time (T2). Compared to the well-studied Gd-based contrast agents, the correlation between the nanoparticle parameters and corresponding relaxivities are not well understood, in particular, the shape effects. This talk will focus on our highly innovative application of ultrathin nanowires as robust positive contrast agents for magnetic resonance imaging (MRI), as oppose to the traditional use of iron oxide nanoparticles as negative contrast agents.

ABSTRACT

A faster, yet reliable non-SELEX screening approach to identify DNA aptamers for non-nucleotide targets

Valeria Tohver Milam, Associate Professor
Materials Science & Engineering, Georgia Institute of Technology

Oligonucleotide aptamers are single-stranded sequences that exhibit high affinity and specificity for a particular non-nucleotide target including, but not limited to molecules, proteins, and even whole cells. Aptamers are conventionally isolated and identified via "Systematic Evolution of Ligands by Exponential Enrichment" (SELEX) in which a pool of candidate sequences is continuously enriched with amplified copies of "winning" sequences or adsorbates from prior selection rounds. While SELEX has revolutionized aptamer discovery and dominated the field for two decades, we have developed a *non*-SELEX screening approach to identify single-stranded DNA aptamers for various gold substrates. Key differences in our screening approach that we have named Competition-Induced Selection of Ligands (CISL) include the elimination of intermittent, time-intensive elution and amplification steps of random sequences that (1) can introduce undesired PCR side products into the candidate pool and (2) bias the candidate pool towards early winners that may simply outnumber other higher affinity aptamer candidates. Following CISL-based screening, we then evaluate sequences to identify base consensus and structural elements (e.g. hairpins, internal loops, bulges) to reveal any shared patterns in the primary structures and predicted secondary structures among the ~20 identified aptamer sequences. Lastly, we rank our aptamer sequences in terms of their frequency as a bound species using high throughput next generation sequencing. As aptamers continue to be pursued as potential analogs and even substitutes for antibodies, we continue to adapt our unconventional screening approach to hopefully enable faster and easier aptamer identification for a rich range of material targets.

2015 NanoBio Summit - Contributed Abstracts at the University of Alabama at Birmingham

Classification	Last Name	First Name	Abstract Title	College or Institution Affiliation
Graduate	Alexander	Grant	Prohealing Multifunctional Endothelium Nanomatrix Coated Stents	University of Alabama at Birmingham
Graduate	Alrbyawi	Hamad	Short -chain ceramides for enhanced Cytotoxicity of Liposome-encapsulated Doxorubicin toward Human Prostate Cancer cells (PC-3)	Harrison School of Pharmacy
Postdoc	Arora, PhD	Summit	Preclinical evaluation of chemopreventive efficacy of silver nanoparticles against ultraviolet radiation-induced skin carcinogenesis	University of South Alabama
Graduate	Ashmore	D'Andrea	The Antibacterial Effects of Zinc Oxide Nanoparticles Against Gram Negative and Gram Positive Bacteria	Alabama State University
Postdoc	Baganizi, PhD	Dieudonne R.	Functionalized Gold and Silver Nanoparticles inhibit Respiratory Syncytial Virus (RSV)	Alabama State University
Graduate	Bawage	Swapnil	Chitosan – PLGA Nanoparticles Inhibit Respiratory Syncytial Virus	Alabama State University
Graduate	Bedwell	Gregory	Selective biotemplated synthesis of TiO ₂ Inside a Protein cage	University of Alabama at Birmingham
Undergraduate	Benson	Kingsley	Wavelength Dependence on Nanoparticle Enhanced Laser Induced Breakdown Spectroscopy	Alabama State University
Undergraduate	Bethune	Brandi	Analysis of polymeric fibers Using ATR Fourier Transform Infrared Spectroscopy and Differential Scanning Calorimetry	Alabama State University
Undergraduate	Bridges	Joshua	Nano and Micro Scale Fabrication of Three-Dimensional Scaffolds for Orthopedic Application	University of Alabama at Birmingham
Graduate	Budhwani	Karim	Lab-On-a-Brane: A Novel Nanofluidics Biomimetic Platform for Pharmacokinetic Evaluation	University of Alabama at Birmingham
Graduate	Chanda	Arnab	Numerical Modeling of Skin Wound Closure with Interrupted Sutures	University of Alabama
Graduate	Chanda	Arnab	Human Skin-Like Biofidelic Sutures	University of Alabama
Postdoc	Chaudhari, PhD	Atul A.	Anti-bacterial effect of silver Coated carbon Nanotubes in Salmonella Typhimurium is Mediated by Down Regulation of Virulence	Alabama State University
Graduate	Chen	Jun	Biocompatible Shaped Particles from Dried Multilayer Polymer Capsules	University of Alabama at Birmingham
Undergraduate	Chen	Szu-Chun	Poly(N-vinylcaprolactam) based Multilayers for Drug Delivery with Temperature-gated Permeability	Illinois Institute of Technology
Graduate	Crenshaw	Brennetta	Efficacy of genipin against human prostate cancer cells	Alabama State University
Research Assistant	Dixit, PhD	Saurabh	Effective Targeting of Dendritic Cells by Poly (lactic acid)-b-Poly (Ethylene glycol) Encapsulated Outer Membrane Peptide of Chlamydia trachomatis for Enhanced Adaptive Immune Responses	Alabama State University
Graduate	Duncan	Skyla	Suppressor of Cytokine Signaling (SOCS) 1 and SOCS3 are Mediators of the Anti-inflammatory effect of Interleukin-10 in Mouse Macrophages Exposed to Live Chlamydia trachomatis	Alabama State University

2015 NanoBio Summit - Contributed Abstracts at the University of Alabama at Birmingham

Graduate	Durfey	Casey	Incorporation of Nanoparticles Within Mammalian spermatozoa Using in vitro vacapitation	Mississippi State University
Graduate	Egbo	Timothy	The Surface Protein (MPER) of HIV on the Q β Coliphage as a Vaccine Candidate	Alabama State University
Graduate	Eggert	Matthew	Assessing the Influence of Secretory Phospholipase A2 Isoforms and PLA2R Expression on Responsive Liposome Nanoparticle Uptake within Prostate Cancer Models	Auburn University
Graduate	Ememu	Ejovwoke	The antimicrobial and Transcriptional Effect of AgCNTs on Pseudomonas Aeruginosa	Alabama State University
Graduate	Ethridge	Aiesha L.	Synthesis of Metallic Nanoparticles and Investigation of their Behavior towards Biological Systems	Tuskegee
Graduate	Finley	Sheree	Forensic Nanotechnology: Recent Advancements in Criminal Investigations	Alabama State University
Graduate	Garg	Sourav	Low Pressure CVD Growth and Characterization of 2D MoS ₂ Monolayers for Bio-Applications	University of Alabama
Undergraduate	Givens	Tatyana	Silver Coated Carbon Nanotubes Conjugated to Peptides for the Inhibition of E.coli	Jackson State University
Graduate	Goswami	Joyanta	Curing Rheology and Composite Properties of Pristine and Styrene Functionalized SWNT	Auburn University
Graduate	Gottipati	Manoj	Probing Astrocytes with Carbon Nanotubes and Assessing Their Effects on Astrocytic Structural and Functional Properties	University of Alabama at Birmingham
Graduate	Gross	Brett	Micro-particle-Mediated Modulation of Dendritic Cell Function for Optimal Tumor Clearance	University of Alabama at Birmingham
Undergraduate	Hanley	Brittnie	Mechanistic Analysis of Forensic Drug Cocaine and Marijuana Detection Using Nanoparticles	Alabama State University
Undergraduate	Hopkins	Seantel	Effects of Non-Aggregating Chemically Functionalized Carbon Nanotubes on the Morphology of Astrocytes and D54 Human Glioma Cells	Jefferson State Community College
Graduate	Huang	Hanxiao	Fibrillation Control Study of PT FE/SAN Solvent Prepared Nanocomposites	University of Alabama at Birmingham
Graduate	Huntley	Chermar	The Influence of Strong Acid Hydrolyses on the Crystal Structure and Thermal Stability of Cellulose Fibers	Tuskegee
Graduate	Hwang	Patrick	The Development of a Bio-inspired Hybrid Nanosack for Enhancing the Efficacy of Pancreatic Islet Transplantation in the Omentum	University of Alabama at Birmingham
Assistant Professor	Jain, Phd	Sapna	Biofunctionalized Quantum Dots for Detection of Foodborne Bacterial Pathogens	Alabama State University
Graduate	Jasper	Shanese	Nano-Metal Composites Inhibit Bacteria	Alabama State University
Graduate	Jindal	Nik	Exploring Electrodeposition Technique to Enhance Functionality of Bio-Implants	University of Alabama at Birmingham

2015 NanoBio Summit - Contributed Abstracts at the University of Alabama at Birmingham

Graduate	Jones	Leandra B.	Anti-viral Drugs Used as Potential Inhibitors Against Respiratory Syncytial Virus	Alabama State University
Graduate	Jones	Kelvin	Biosensor for Threat agent Detection on the Novel RNA Coliphage Q β Display Platform	Alabama State University
Graduate	Kaneza	Nelly	Electrochemical and Spectroscopy Studies of BODIPY-Thiophene-Triphenylamine Based Dyes for Dye-Sensitized Solar Cells	University of Alabama
High School Student	Kaushik	Ashish	Effect of pH variation on the antibacterial activity of a novel antimicrobial peptide on Gram-negative and Gram-positive bacteria	Alabama State University
Graduate	Kaushik	Sagar	Evaluation of Ciprofloxacin and Metronidazole Encapsulated Injectable Self-Assembled Biomimetic Nanomatrix Gel on Enterococcus faecalis and Treponema denticola	University of Alabama at Birmingham
Graduate	Khan	Muhammad	Hybrid Nanopore Biosensor: In Vitro Label-Free Electrochemical Detection of Epithelial Na ⁺ Channel	University of Alabama
Postdoc	Laiginhas, PhD	Fernando	APT Analysis of Bulk Chemistry in Mineral Standards	University of Alabama
Graduate	Liu	Fei	Temperature-sensitive polymer sponges for controlled delivery of anticancer drugs	University of Alabama at Birmingham
Undergraduate	Loehr	Savannah	ASU also paid for Loehr after she paid. ASU will need to reimburse Loehr and may submit another attendee to take Loehr's place	North Carolina at Chapel Hill
Undergraduate	Loehr	Savannah	Mode of Administration of Gold Nanoparticles Determines the Inhibition of Respiratory Syncytial Virus	North Carolina at Chapel Hill
Vendor Table Only	Marten	Rich	(1) Atom Probe Tomography Analysis of Bulk Chemistry in Mineral Standards (2) Marketing and Promoting Core Research Facilities: Economic Development and the Central Analytical Facility at The University of Alabama	University of Alabama
Undergraduate	Montgomery	Aundrya	Gold Nanorod Application to H Ep-2 Cells to Observe miRNA Expression and Cytotoxicity	Alabama State University
Graduate	Nie	Ben	A New Strategy for sPLA2 Responsive Liposome In Vitro and In vivo Uptake Quantification in Prostate Cancer by LC-MS/MS	Auburn
Undergraduate	Noeller	Taylor	RNA Phage Display Peptide: A Platform for Biosensor Development	Alabama State University
Graduate	Noor	Matthew	Comparing covalent and non-covalent lysozyme functionalized single-walled carbon nanotubes	Auburn University
Graduate	Oh	Jonghwa	Comparison of Buckypapers' (BPs) Adsorption Efficiency by Different Fabrication Methods	University of Alabama at Birmingham
Undergraduate	Omar	Yousef H	Comparative Study on the Protective Efficacy of Silver, Zinc Oxide and Titanium Dioxide Nanoparticles in Human Keratinocytes Against UVB Radiation-Induced DNA Damage	University of South Alabama

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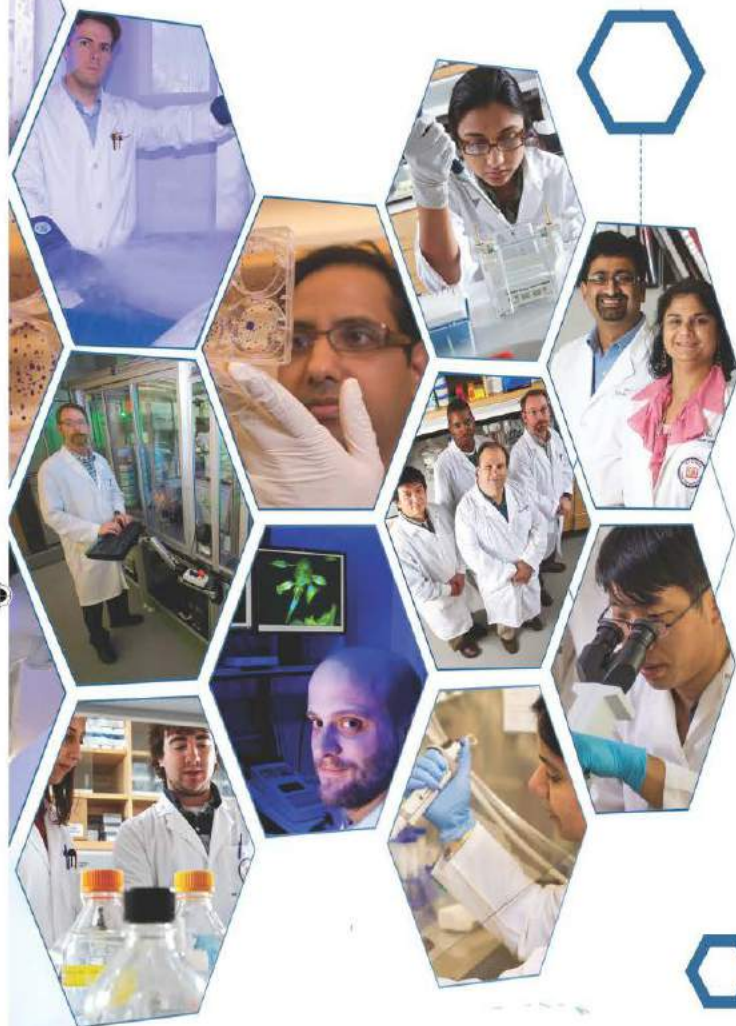
Graduate	Parit	Mahesh B	Polymer Specific Functionalization of Single-Walled Carbon Nanotubes (SWNTs) for Composite Additive Manufacturing	Auburn University
Graduate	Peoples	Veolanda A.	The Antimicrobial Effect of Metallic Nanoparticle-Antibiotics Conjugates on the Viability of Pneumococci	Alabama State University
Graduate	Porter	Haley	Physicochemical Characterization of Nepafenac by Hydroxypropyl-Beta-Cyclodextrin Complex for Ocular Delivery	Auburn University
Graduate	Prado	J. Rachel	Thermal Stability of Gelatin Gels Confined to Silica Gel Nanopores	University of Alabama at Birmingham
Associate Professor	Ramapuram, PhD	Jayachandra B.	Formulation of Genistein Nano Emulsion for Enhanced Transdermal Delivery	Auburn University
Graduate	Saha	Partha	Sulfonated Cellulose Nanocrystal Films for Structural Materials in MEMS	Auburn University
Graduate	Sahu	Rajnish	Intracellular Trafficking of a Chlamydia Nanovaccine with Coumarin-6 Labeling in Mouse Primary Dendritic Cells	Alabama State University
Graduate	Salam	Hamad	Molecular Modeling of Novel Peptide-Receptor Interaction for The Targeted Drug Delivery of The Prostate Cancer	Tuskegee University
Graduate	Shan	Zhichao	Nanostructured Carbon Doped Titanium Oxygen Electrode for Efficient Water Splitting Reaction	University of Alabama
Assistant Professor	Simien, PhD	Daneesh	Sorting of Single Walled Carbon Nanotubes En Route to Exploring Nanoscale Molecular Cloaking in Hydrocarbon Based Structure	University of Alabama at Birmingham
Graduate	Singh	Ankur K.	Chitosan-pHEMA Based RSV-F DNA Nano-Vaccine	Alabama State University
Graduate	Syed	Farooq	A Molecular Dynamics Simulation Approach to Predict the Elastic Properties of Epon 862 Composites Reinforced With Carbon Nanotubes	Tuskegee
Assistant Professor	Thomas, PhD	Vinoy	Drug Eluting Fibro-porous 3D Tubular Conduits for Vascular Graft Applications	University of Alabama at Birmingham
Graduate	Tiwari	Pooja M.	Peptide Gold Nano-Conjugates Inhibit Respiratory Syncytial virus Infection in Balb/C Mice	Alabama State University
	Williams	Lamario	Assisting at registration table	University of Alabama at Birmingham
Graduate	Wood	Andrew	Reinforcement of Hydrogels via Discontinuous Non-Woven Soy Fiber Scaffolds	University of Alabama at Birmingham
Graduate	Xue	Bing	Intracellular Degradable Hydrogel Cubes and Spheres for Anti-cancer Drug Delivery	University of Alabama at Birmingham

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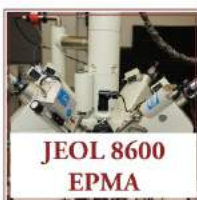
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