

M R B NEWS

Featured Faculty: Sunil A. David, M.D., Ph.D, Assistant Professor, Medicinal Chemistry

Research Interests:

Drug discovery; design and development of endotoxin sequestrants; anti-angiogenic heparin-binding polycationic compounds; Innate immunity; Infectious diseases.

Educational

Background:

*M.D., 1986 Christian Medical College, Vellore
Ph.D., 1994, Christian Medical College, Vellore, India*



Article reprints from KU Technology transfer News and KU Dept of Medicinal Chemistry

The primary area of research in Dr. David's lab is the development of novel drugs for the therapy and prophylaxis of Septic Shock. Sepsis is the leading cause of mortality in the intensive care unit. A common and serious sequel of systemic bacterial infections, sepsis accounts for some 200,000 fatalities annually in the U.S. alone, a figure higher than that attributable to AIDS and breast cancer combined. The pathogenesis of Gram-negative septic shock, a leading cause of mortality in critically ill patients, is a consequence of the host response to endotoxins, or lipopolysaccharides (LPS), present on the surface of gram-negative bacteria. "We have shown that relatively simple, and synthetically easily accessible molecules of the lipopolyamine class specifically bind to the toxic "Lipid A" portion of LPS and neutralize its toxicity both in vitro, and importantly, in Well established

animal models of septic shock. Using experimentally determined structural leads as our point of departure, and utilizing a battery of established and biophysical and biological assays, we are testing hypotheses pertaining to specific structural requirements that ascribe endotoxin-binding and neutralizing properties in synthetic small molecules, with the aim of developing promising leads as candidate endotoxin sequestrants of potential clinical value."

Another area of research in the David lab is the inhibition of angiogenesis. The hypothesis is that compounds that bind heparin could inhibit the binding of angiogenic growth factors, and thus be applicable to cancer therapies. His research group has developed a new high throughput screen that enables the rapid identification of heparin-binding compounds, and quantitative measure-

measurements of their binding affinity to heparin. His group has identified a class of compounds that bind strongly to heparin and inhibit angiogenic growth factor-driven proliferation of endothelial cells.

Dr. David is an author in over thirty publications.



Pictured above: David Group Lab



Pictured above: Thuan Nguyen (left) with Dr. David



Pictured above: Anarupa Shrestha (front) and Shannon Short (back)

MEET THE POST DOC



Name: Lisa Crow
Field of Study: Organic Chemistry
Years at KU: August, 05
Hobbies: Drawing, Painting
Home Town: Nagoma, South Africa

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Pictured above: Carla Ramirez venting a Nitrogen tank

MRB TIDBITS

As the end of the school year approaches, please make sure that any individuals not returning to MRB turn in their lab/office keys. Please alert admin so the card reader system can be updated.

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**When picking packages up at the back dock area please sign the log on the dock desk!**  
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In addition to contacting the IT help desk by phone, you may also email them at mrbhelp@ku.edu

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*Congratulations Graduates!!!*

**MRB Work Order requests are now available in PDF form. If you have any building, lab, or custodial issues to report we would be happy to either email you the form or fill it out for you!**  
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We have started a library of MRB photos. If you need any photos for presentations, etc or would like to donate any photos you have please see Admin.

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**If you missed the Nitrogen training and would like to attend the next session, please see Teri, Carla, or Ann**

The Office of the Vice Provost for Research now has an online newsletter available for the Lawrence campus research community. The monthly newsletter can be found online at: [www.research.ku.edu/news](http://www.research.ku.edu/news) or you may subscribe to the online newsletter by emailing [cfosher@ku.edu](mailto:cfosher@ku.edu) and put "subscribe" in the subject line.

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Science and medical writing students in the William Allen White School of Journalism and Mass Communications at KU have a very interesting website called "Science Issues in Kansas."

Check them out at:
<http://science.journalism.ku.edu/>



Pictured above: Jen Roberts and Luis Gonzalez (Geology) at the MRB Dedication ceremony