

Achaogen : Investigators from Achaogen, Inc. Report New Data on Chemical Biology (Toxicity Modulation, Resistance Enzyme Evasion, and A-Site X-Ray Structure of Broad-Spectrum Antibacterial Neomycin Analogs)

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By a News Reporter-Staff News Editor at Life Science Weekly -- Investigators discuss new findings in Chemical Biology. According to news reporting originating from San Francisco, California, by NewsRx correspondents, research stated, "Aminoglycoside antibiotics are pseudosaccharides decorated with ammonium groups that are critical for their potent broad-spectrum antibacterial activity. Despite over three decades of speculation whether or not modulation of pK(a) is a viable strategy to curtail aminoglycoside kidney toxicity, there is a lack of methods to systematically probe amine-RNA interactions and resultant cytotoxicity trends."

Our news editors obtained a quote from the research from Achaogen, Inc., "This study reports the first series of potent aminoglycoside antibiotics harboring fluorinated N1-hydroxyaminobutyryl acyl (HABA) appendages for which fluorine-RNA contacts are revealed through an X-ray cocrystal structure within the RNA A-site. Cytotoxicity in kidney-derived cells was significantly reduced for the derivative featuring our novel beta,beta-difluoro-HABA group, which masks one net charge by lowering the pK(a) without compromising antibacterial potency."

According to the news editors, the research concluded: "This novel side-chain assists in evasion of aminoglycoside-modifying enzymes, and it can be easily transferred to impart these properties onto any number of novel analogs."

For more information on this research see: Toxicity Modulation, Resistance Enzyme Evasion, and A-Site X-ray Structure of Broad-Spectrum Antibacterial Neomycin Analogs. *ACS Chemical Biology*, 2014;9(9):2067-2073. *ACS Chemical Biology* can be contacted at: Amer Chemical Soc, 1155 16TH St, NW, Washington, DC 20036,USA. (American Chemical Society - www.acs.org; ACS Chemical Biology - www.pubs.acs.org/journal/acbcct)

The news editors report that additional information may be obtained by contacting J.P. Maianti, Achaogen Inc, San Francisco, CA 94080, United States. Additional authors for this research include H. Kanazawa, P. Dozzo, R.D. Matias, L.A. Feeney, E.S. Armstrong, D.J. Hildebrandt, T.R. Kane, M.J. Gliedt, A.A. Goldblum, M.S. Linsell, J.B. Aggen, J. Kondo and S. Hanessian (see also Chemical Biology).

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