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## RNA-binding molecules: Structure, function and synthesis

The remarkable ability of diverse families of natural products produced by fermentation to bind to subunits of the bacterial ribosome has been the basis of a rich history in the realm RNA function. The aminocyclitol group of antibiotics comprise among other, the aminoglycosides that have been in clinical use for decades. These are glycosides of 2-deoxystreptamine, a symmetrical diamino cyclohexane triol. Another group comprises a smaller subset of highly functionalized aminocyclopentitols which have shown antitumor, antibacterial, and more recently antiprotozoal activities *in vitro*. Elegant X-ray crystallographic studies of complexes of ribosomal subunits with representative aminocyclitols have laid a strong foundation for the structure-based design of chemically modified analogs. Recent results pertaining to such studies and relevant antibacterial activities against sensitive and resistant strains will be highlighted.

### Biography

Stephen Hanessian holds the Isis Pharmaceutical Research Chair at the University of Montreal and is also on the faculty of the Departments of Chemistry, Pharmaceutical Sciences and Pharmacology at the University of California, Irvine. He has received numerous awards and distinctions, the latest being the 2012 Ernest Guenther Award in the Chemistry of Natural Products from the American Chemical Society, and the IUPAC-Richter-Prize in Medicinal Chemistry. He has published over 530 original papers and holds several patents.

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