

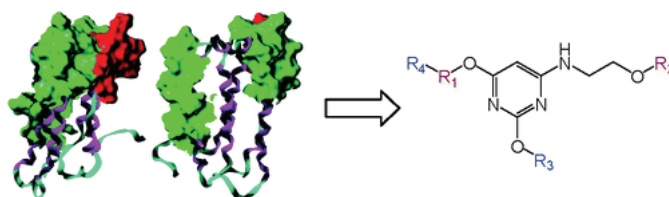
Peptide Mimetics for Treatment of Autoimmune and Viral Diseases

Overview of Technology:

Lupus affects at least 1 in 2,000 people in North America, predominantly women, and the incidence of this disease is increasing. There is no safe and reliable treatment for this disease. Current therapies have side effects that include organ and bone damage, high blood pressure, and increased risk of cancer and infection. An effective lupus therapeutic would have a potential market of approximately \$1.15 billion in the US alone. As interferons are implicated in the pathology of lupus, drugs that inhibit the activity of interferons have potential benefits in the treatment of lupus and selected other autoimmune diseases. Drs. Fish and Kotra at the University Health Network have designed several compounds that recognize the interferon receptor and exhibit strong bioactivity. Current *in vitro* data is promising with the compounds exhibiting activity against autoimmune diseases such as lupus. Research is underway to demonstrate this activity *in vivo*.

Interferons are also the first line of defense against all viral infections and have proven therapeutic activity when administered for hepatitis and SARS infections. Currently, interferon-based hepatitis therapies generate annual sales of over \$5 billion worldwide. However, there are economic and health issues related to current interferon treatments due to their method of delivery, cost of goods and products stability. The interferon peptide mimetic compounds invented by Drs.

Fish and Kotra are potentially efficacious as antivirals as they can also be used to increase interferon activity.



Two such IRRPs, IRRP-1 and IRRP-3, were used as templates to design small molecule mimetics exhibiting antagonist activity

This class of compounds exhibits good solubility, are orally available, and are inexpensive to produce.

Related Publication:

Bello, A.M., *et al.* De Novo Design of nonpeptidic compounds targeting the interactions between interferon- α and its cognate cell surface receptor. *J. Med. Chem.* **51(9)**, 2734-43 (2008)

Patent:

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