Docket #: S10-441

PI-kinase inhibitors with broad spectrum anti-infective activity

The standard treatment for hepatitis C virus (HCV) is poorly tolerated and ineffective in a large subset of HCV patients. Scientists at Stanford and UCSF have developed new therapeutic leads for HCV that also have potential to be broad-spectrum anti-infectives. These lead compounds have a novel mechanism of action that targets a pathogen's interaction with host cell PIP-2, which is required for genome replication in many viruses. Although genetic knockout of the targeted enzyme is lethal in mice, and several Pharma companies have terminated development of similar compounds, we believe that an acceptable therapeutic index might be achievable in humans.

Stage of research

Through a series of iterative experiments, the inventors have developed compounds, without host cell toxicity, that inhibit HCV replication at sub-micromolar concentration. These compounds have similarly dramatic inhibitory activity for other pathogens.

Applications

- Treatment of HCV infection
- Prophylaxis against HCV infection- post-exposure or post-transplant
- Potential broad spectrum anti-infective

Advantages

- Novel mechanism of action orthogonal to compounds in clinical development
- Treatment regimens that include these compounds may:
    - Be better tolerated

    - Allow for shorter course of therapy
    - Be more effective

- Resistance may be more difficult to develop
- Fills a need for broad-spectrum anti-infectives

Patents

- Published Application: WO2013052845
- Published Application: 20150051193
- Published Application: 20160194314
- Published Application: 20180170924
- Issued: 9,309,236 (USA)
- Issued: 9,926,309 (USA)
- Issued: 10,428,060 (USA)

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