2018-146 Inhibitors of Zika Virus

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Technology description

SUMMARY

UCLA researchers in the Department of Psychiatry and Biobehavioral Sciences, Department of Radiation Oncology and Department of Pathology have identified sulfonamide-based small molecules that show anti-Zika activity at low nanomolar range.

BACKGROUND

Zika virus is an arthropod-borne flavivirus transmitted mainly by infected mosquitos, and it can also be transmitted via maternal to fetal vertical transmission, blood product transfusion, organ transplantation, as well as through sexual contact. Zika virus is linked to fetal developmental abnormalities such as microcephaly, eye defects, and impaired growth when infection occurs in pregnant women. Zika infection also leads to severe neurological complications and possibly male infertility in adults. Currently, there is an ongoing Zika virus outbreak in the Americas, the Caribbean, and the Pacific. However, there are no reliable treatment or vaccine options available to protect those infected by the virus. Bioactivity (IC50) reported to date for small molecules is in the micromolar range, and development of more effective treatment for Zika infection is needed.

INNOVATION

Researchers at UCLA have identified small sulfonamide-based compounds that show potent anti-Zika activity in the low nanomolar range (IC50 = 2.3 nM). These small organic molecules can be synthesized inexpensively in large scale and administered orally as prophylactic, post-exposure prophylactic, and treatment option for Zika virus infections in general and in high-risk populations, including infected pregnant women.

Application area

Prophylactic, post-exposure prophylactic, and treatment option for Zika virus infections

Advantages

More effective (IC50 at nanomolar range) than other small molecule inhibitors

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