Singh et al. BMC Infectious Diseases 2014, 14(Suppl 3):E15 http://www.biomedcentral.com/1471-2334/14/S3/E15

EPOSTER PRESENTATION

BMC Infectious Diseases

Open Access

Design, synthesis and biological evaluation on *N*-heteroaryl compounds as probable NNRTIs against laboratory adapted strains and the primary isolates of HIV-1

Anuradha Singh¹, Madhu Yadav¹, Ritika Srivastava¹, Nidhi Singh¹, Ashwini Godse², Rahul Suryawanshi², Ashwini Dhamanage², Smita Kulkarni², Ramendra K Singh^{1*}

From 2nd International Science Symposium on HIV and Infectious Diseases (HIV SCIENCE 2014) Chennai, India. 30 January - 1 February 2014

Background

The emergence of drug resistant HIV strains and suitability of NNRTIs as potent anti-HIV molecules used in HAART did attract our attention towards developing NNRTIs. We, therefore, focused on developing some new NNRTIs utilizing benzimidazole and pyrimidine moieties to match the hydrophobic nature of the allosteric pocket in HIV-RT.

Methods

Compounds designed on the basis of extensive computational studies, were finally synthesized through facile synthetic route and characterized using various chromatographic and spectral techniques. All synthesized molecules have been screened against HIV-1 using TZM bl assay and laboratory adapted strains HIV-1 IIIB (X4, subtype B), HIV-1 Ada5 (R5, Subtype B) and the primary isolates HIV-1UG070 (X4, Subtype D).

Results

Cell based assay showed that majority of the compounds were active at micro molar concentrations (1.39-17.39 μM) and the SI value ranged between 10.77-17.39 against lab adapted strains and 5.8–13.91 against primary isolates. The studies on structure–activity relationship were also consistent with the experimental data.

¹Nucleic Acids & Antiviral Research Laboratory, Department of Chemistry, University of Allahabad, India

Full list of author information is available at the end of the article



Conclusions

In view of the results obtained, these compounds may be developed as potent inhibitors of HIV-1 replication with suitable structural/pharmacophore modifications.

Authors' details

¹Nucleic Acids & Antiviral Research Laboratory, Department of Chemistry, University of Allahabad, India. ²National AIDS Research Institute, Pune, India.

Published: 27 May 2014

doi:10.1186/1471-2334-14-S3-E15 Cite this article as: Singh *et al.*: Design, synthesis and biological evaluation on *N*-heteroaryl compounds as probable NNRTIs against laboratory adapted strains and the primary isolates of HIV-1. *BMC Infectious Diseases* 2014 14(Suppl 3):E15.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

) BioMed Central

Submit your manuscript at www.biomedcentral.com/submit

© 2014 Singh et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http:// creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.

^{*} Correspondence: rksinghsrk@gmail.com