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27th August 2024

Subject: Citation (brief summary) on the research work of the applicant by nominator

Award Committee Chair:

I am writing to provide a citation and summary of the research work submitted for Sun Pharma Science Foundation Research Scholar Award in the field of Pharmaceutical Sciences by Nilu Gone in the development of a novel class of SARS-CoV-2 Main Protease (M^{pro}) inhibitor which has been published recently - Nilu Gone *et al*: "Discovery of SARS-CoV-2 Inhibitors Featuring Novel Histidine α-Nitrile Motif" *Chem. Biodiversity.*, **2023**, e202300957 (DOI: https://doi.org/10.1002/cbdv.202300957). Patent application filed: **Nilu V. Gone,** Kiran Bokar, G. J. Sanjayan, "SARS-COV-2 inhibitors and method of preparation thereof". Patent application number: 0051NF2024/IN, **2021**. Nilu Gone's research work primarily aimed in discovery of a novel class of inhibitors against the SARS-CoV-2, bearing histidine α-nitrile motif embedded on a simple dipeptide framework. Her research work is having twofold advantage: firstly, the designing and short synthesis of histidine α-nitrile dipeptides as simplest peptidomimetics inhibitors; secondly, it successfully identifies these histidine α-nitrile dipeptides as SARS-CoV-2 main protease (M^{pro}) inhibitor agents. The antiviral assay and computational analysis revealed that the potent histidine α-nitrile dipeptides **6i** displayed strong SARS-CoV-2 viral reduction (EC_{50} = 0.48 μM) and M^{pro}-inhibitors binding energies in the range of -34.2 Kcal/mol, respectively. Overall, her research work led to the development of histidine α-nitrile dipeptides as a novel class of SARS-CoV-2 inhibitors that would raise the hope as a potent drug candidate to fight the dreaded SARS-CoV-2 and its variants. The practical utility of histidine α-nitrile dipeptides could have a positive effect in future pandemics, reducing the risks to both lives and the economy.

With best regards and season's greetings,

Gangadhar J. Sanjayan