

# KMU proudly presents a Novel Prophylactic and Therapeutic Strategy Against Dengue virus, Enterovirus 71, and Possible SARS-CoV-2 Infection

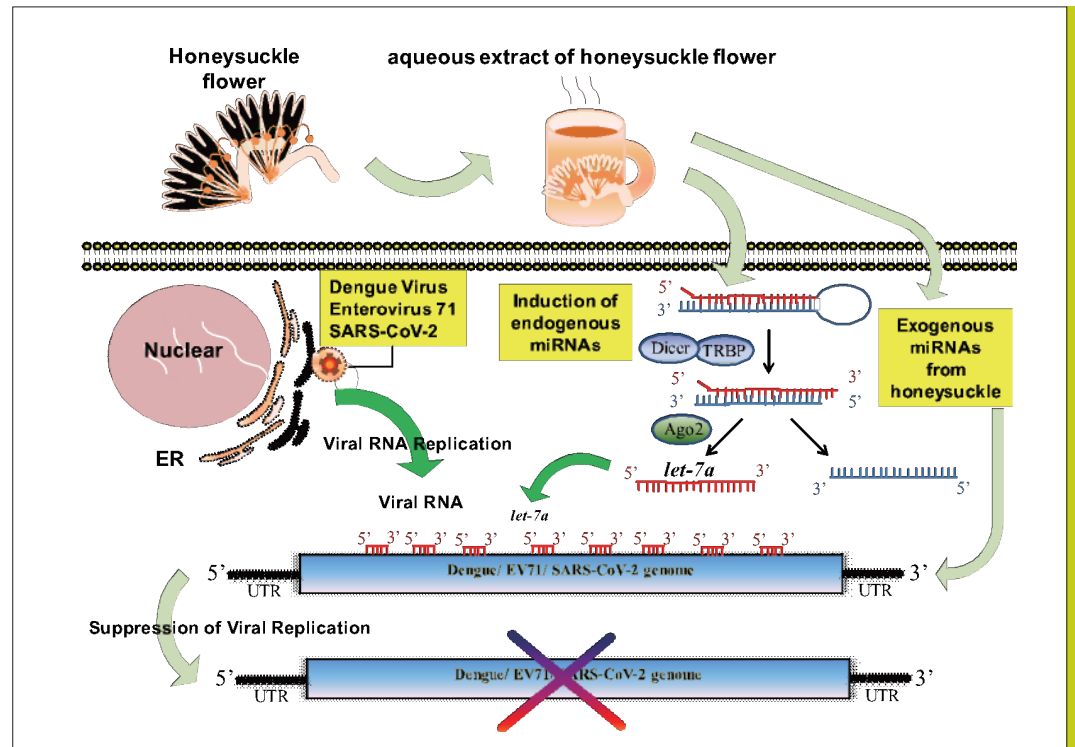


Figure 1

Traditional Chinese medicine (TCM) including the use of honeysuckle (*Lonicera japonica* Thunb) has been used worldwide to treat various diseases through modulating host immunity. MicroRNAs (miRNAs) are small non-coding RNAs that are ubiquitously expressed in cells, and endogenous miRNAs serve as an innate response to pathogen invasion. The research, led by KMU distinguished visiting Professor Hsiao-Sheng Liu (M. Sc. Program in Tropical Medicine) and Associate Professor Ying-Ray Lee (Department of Microbiology and Immunology) in collaboration with National Cheng Kung University and National Yang-Ming University, is the first to conduct human trials combined with cell lines and animal studies to demonstrate that drinking honeysuckle flower water could induce

specific host miRNAs (Fig. 1). They revealed that 12 miRNAs (including *let-7a*) induced both in mice and human volunteers were able to recognize the dengue virus, enterovirus 71 (EV71) and SARS-CoV-2 genome sequences. In their two published papers, they used *let-7a* as the example to confirm that treatment with either honeysuckle or *let-7a* was able to suppress dengue virus and EV71 replication both in cell lines and animal models (*J Ethnopharmacology*, 2017 and *Viruses*, 2021). Moreover, the viral amount and disease symptoms were alleviated when associated with prolonged survival time in viral-infected mice. Notably, they also found that

drinking honeysuckle flower water could reduce the risk of dengue virus infection. In summary, their study opens a new avenue in TCM and natural product studies for the prophylactic and therapeutic effects on dengue virus, EV71 and SARS-CoV-2 infection by

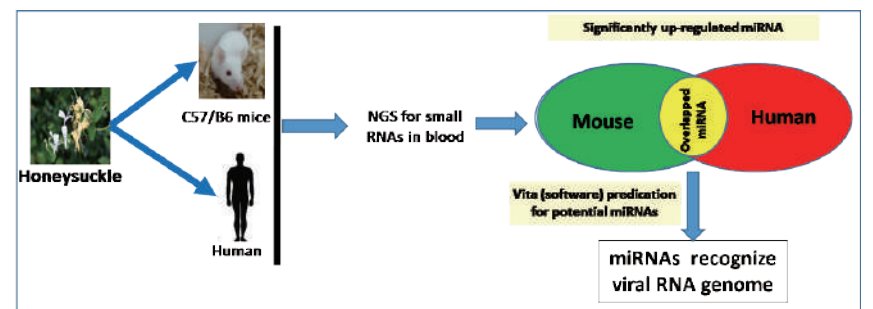


Figure 2

manipulating innate miRNAs to block viral infection (Fig. 2).

## KMUH's Department of Pharmacy Develops a Novel Formula to Improve the Quality of Home Parenteral Nutrition

The KMUH Department of Pharmacy began clinical intravenous nutrition services in 1989, tailoring the total parenteral nutrition (TPN) formula to patient's individual daily needs. Intravenous nutritional preparations are formulated under the supervision of the pharmacist in an appropriate environment to ensure sterility and quality assurance. For the home environment the pharmacy provides daily intravenous nutritional needs for home-based patients using the Baxter, EM2400 fully automatic compounding device (ACD).



Automatic TPN machine (Exacta-Mix 2400) enhances medication security ( KMUH pharmacy)

In 2018 with the introduction of the KMUH cross-department information system and the computer TPN order system, the safety of home patients receiving PN treatment was greatly improved. Compared with the errors that can be generated by manual modulation, the ACD brings more safety, labour savings, and increased efficiencies.

Taiwan's parenteral and enteral nutrition pharmacists have entered into this area of specialization,

and it is expected that KMUH will excel in high-quality and standardized adjustments in this new operating environment. In the future, more nutritional formulas for different medical conditions will be designed to meet the requirements of clinicians and provide safe and effective PN treatment to patients.



Pharmacist service for HPN medicines ( KMUH pharmacy)