

## A NOVEL ANTITUMOR PROTEIN FROM CALLOSELASMA RHODOSTOMA VENOM IN VIETNAM

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### Abstract

There are over thirty thousand of snakebite victims annually in Vietnam (VN). Two venomous snake families cause the big medical problem. In this, *Calloselasma rhodostoma* (CR) is the most dangerous snake of viperidae. Therefore, since 2014, the scientific research collaboration between VN and University of Southern California (USC) has been established and approved by VN government. The aim of the 1st project was determined the technological process for purification of disintegrin from CR venom of VN (CRd.VN), looking for a new candidate drug of cancer treatment.

**Method:** The process of collection, lyophilization of CR venom from VN. Its protein concentration was determined by BCA assay. High Performance Liquid Chromatography (HPLC), SDS-PAGE, Mass spectrometry (MS) analysis and sequencing by tryptic digestion were used for purification of CR disintegrin of Vietnam (CRd.VN) and determined its molecular weight (MW) and structure. Standard cell biological methods were employed to characterize CRd's abilities to inhibit platelet aggregation, adhesion, migration and invasion of tumor cells (in vitro). The anti-cancer activities of CRd.VN in the breast cancer (BC) of mice model (in vivo) were tested. **Results:** The peak No 7 of HPLC (CRd.VN) showed a single (MW $\approx$ 10 kDa) band on SDS-PAGE gel. CRd.VN's MW was 7.33 kDa. Its molecular structure and the sequence were a monomer, containing 68 amino acids with RGD motif (position 49-51) and 6 disulfide bonds. The anticancer activities of CRd.VN were very strong and safe. The result of the first research project was approved by The VN Scientific Board, 2018.

**Conclusion:** We have shown that CRd.VN is a possible anti-tumor agent with clinical potential. This is opening for CRd.VN recombinant production, preliminary pharmacokinetics, and toxicological properties before coming to a preclinical trial course

### Biography:

Kiem X. Trinh was born in Hanoi, Vietnam. He completed his B.S. at the California Institute of Technology, and his Ph.D. at Princeton University. The University of Virginia, where he is a professor, since 1976, and is a Research Associate. He was a founding member of the International Society for Science and Religion. Thuận was the recipient of UNESCO's Kalinga Prize in 2009 for his work in popularizing science. He received the Kalinga chair award at the 99th Indian Science Congress at Bhubaneswar. In 2012, he was awarded the Prix mondial Cino Del Duca from the Institut de France. This prize recognizes authors whose work, literary or scientific, constitutes a message of modern humanism. Thuận's areas of interest are extragalactic astronomy and galaxy formation. His research has focused on the evolution of galaxies and the chemical composition of the universe, and on compact blue dwarf galaxies.





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