

Novel Flavonoid Dimers against Cutaneous and Visceral Leishmaniasis

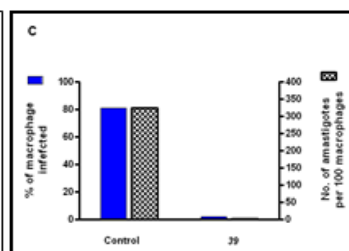
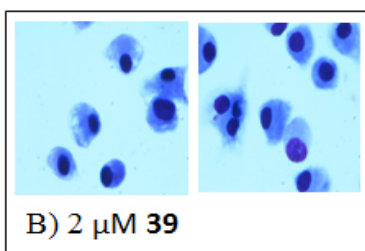
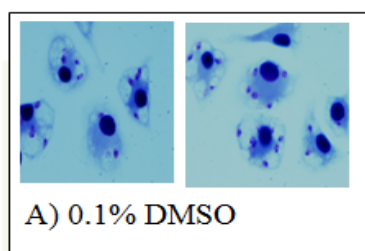
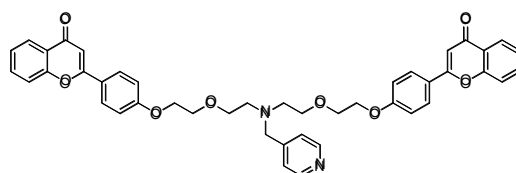
Professor Larry M.C. CHOW, Professor Bill T.H. CHAN
Department of Applied Biology and Chemical Technology

Drug
Discovery

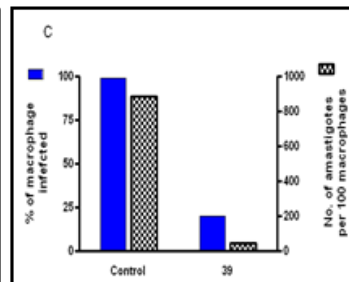
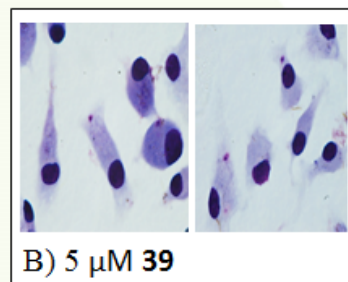
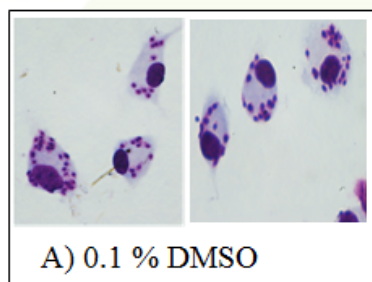
. Potent Anti-promastigote and Anti-amastigote Activities *in vitro* and *in vivo* .

Leishmaniasis is a serious parasitic disease that threatens about 350 million people in the world. Treatment of leishmaniasis by chemotherapy remains a challenge because of limited efficacy, toxic side effects and drug resistance. Plant-derived natural products such as flavonoids have been a good source for discovering antiparasitic compounds. Previously, we demonstrated that synthetic flavonoid dimers can inhibit the pumping activity of ATP-binding Cassette (ABC) transporters, resulting in an increase in intracellular drug accumulation and thereby reversing drug resistance in both cancer and *Leishmania*. In this study, some of the flavonoid dimers were found to have potent anti-promastigote and anti-amastigote activity towards cutaneous strain and visceral strain of *Leishmania in vitro* and *in vivo*.

Flavonoid Dimer 39



Anti-amastigote activity of compound 39 against cutaneous *L. amazon LV78*



Anti-amastigote activity of compound 39 against visceral *Ld39*

Representative Publications

1. Wong ILK, Chan, K-F, Chen Y-F, Lun, Z-R, Chan TH* and Chow LMC* (2014) In vitro and in vivo efficacy of novel flavonoid dimers against cutaneous leishmaniasis *Antimicrob Agents Chemother.* 58(6):3379-3388
2. Wong, ILK, Chan, K-F, TH Chan* and Chow LMC* (2012) Flavonoid Dimers as Novel, Potent Antileishmanial Agents *J. Med Chem* (2012) 55 (20), pp 8891-8902
3. Wong ILK, Chan, KF, Zhao Y, Chan, TH and Chow LMC* (2009) Quinacrine and novel apigenin dimer can synergistically increase pentamidine susceptibility in protozoan parasite *Leishmania* *J Antimicrob Chemother* 2009;63 (6): 1179-1190
4. Wong IL, Chan KF, Burkett BA, Zhao Y, Chai Y, Sun H, Chan TH and Chow LMC* (2007) "Flavonoid Dimers as Bivalent Modulators for Pentamidine and Sodium Stibogluconate Resistance in *Leishmania*." *Antimicrob Agents Chemother.* 2007 Mar;51(3):930-940



Innovation and Technology
Development Office
創新及科技發展處

Contact Us

Ms. Nelly Lam . Executive Officer
T // (852) 3400 2819
E // nelly.lam@polyu.edu.hk

LH-R012/20150522