Synthesis and Biological Evaluation of Oxime- and Amide-containing Coumarin Derivatives

Ken-Ming Chang (張耿銘)[1], Tai-Chi Wang (王泰吉)[2], I-Li Chen (陳意莉)[2], and Cherng-Chyi Tzeng (曾誠齊)[3,*]

[1] *Graduate Institute of Pharmaceutical Sciences, College of Pharmacy, Kaohsiung Medical University, Kaohsiung, Taiwan*

[2] *Department of Pharmacy, Tajen University, Pingtung, Taiwan*

[3] *Department of Medicinal and Applied Chemistry, College of Life Science, Kaohsiung Medical University, Kaohsiung, Taiwan*

Recently, we have synthesized certain coumarin α-methylene-γ-butyrolactones for biological evaluations. Some of them were found to possess cardiovascular effects while others have been proved to be potential antiproliferative agents. A number of oxime- and amide bearing quinolin-2(1*H*)-one derivatives have also been synthesized and demonstrated to possess anti-inflammatory and antiproliferative activities.

To explore novel type of biologically active coumarin derivatives, we have synthesized a series of oxime and amide bearing coumarins and evaluated for their biological activities. These compounds were synthesized *via* alkylation of hydroxylated coumarin precursors followed by the reaction with NH_2OH or NaN_3 (Schmidt reaction). The preliminary assays indicated that oxime-containing coumarin derivatives possessed good inhibitory activities on the fMLP-induced inflammation while the amide-conntaining coumarin derivatives exhibited potent antiproliferative activities against the growth of NPC-TW01, H661 and Jurkat cell lines. The cell cycle analysis showed that the amide-containing coumarin derivatives arrested NPC-TW01 cells at *S* phase with dose-dependent manner.