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微生物與細胞致病機轉 實驗室

我們實驗室主要的研究是著重於微生物及免疫學，除了探討微生物致病機轉之外，也分析微生物抗藥機轉及找尋替代的治療藥物，並發展新穎抗菌醫材及應用於臨床治療，相關研究主題如下：

1. Molecular mechanisms of bacterial components in induction of host pathogenesis

Our study has been interested in the investigation of molecular mechanisms of several virulence factors involved in bacteria-induced pathogenesis of host cells. We have been working on several virulence factors of *H. pylori*. The relationship of virulence determinants with more severe clinical outcomes has been reported. In addition to *H. pylori*, the functional studies of cytolethal distending toxin (CDT) secreted from *C. jejuni* as well as peptidoglycan produced by Gram-positive bacterium have also been investigated.

2. Development of potent chemical compounds on anti-microbe effects

The other focus of our laboratory is functional studies involved in the screening and discovery of novel drugs against microbes and microbe-related diseases. To develop new antimicrobials against virus or bacterial infections, we have begun a series of experimental design for such specific goals since 2006. Some of those chemicals and pure compounds from food or traditional Chinese medicines have been elucidated their molecular mechanisms on antimicrobial activities and suggested that they have potential to develop new therapeutic drug for the prevention of microbe-related diseases. Molecular-bases for developing a novel treatment to combat microbe infection is currently undergoing in our laboratory.

3. Cancer biology

Seventy thousand patients are diagnosed with cancer in Taiwan every year. Early detection of cancer would greatly improve long-term survival rates. We have recently obtained several proteins as sensitive biomarkers for early detection of patients with oral cancer. In addition, we have also investigated how various potent drugs against several types of cancers in the molecular mechanisms. The aims of discovery novel drugs for inhibiting tumor cells are currently developed and characterized in our laboratory.

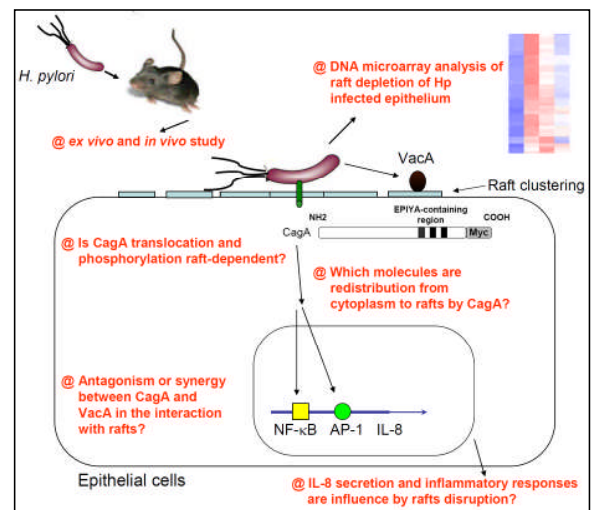


Fig. 1 Molecular mechanisms of *H. pylori*-induced pathogenesis

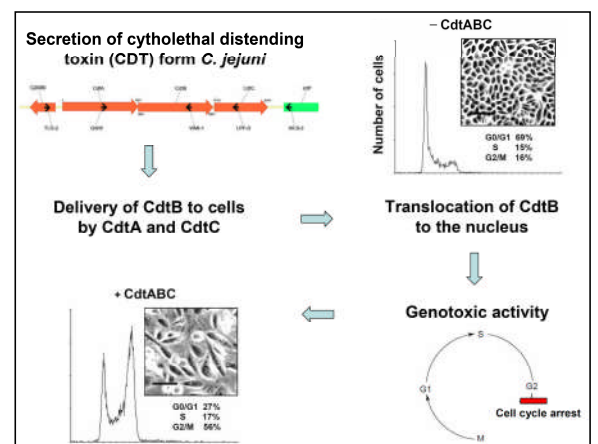


Fig. 2 Depiction of cytolethal-distending toxin intoxication of cells