Title	**CpG-4609** 寡脫氧核苷酸，包含其之免疫組成物，及用於誘發兔子的免疫反應
	CpG-4609 Oligodeoxynucleotide, immunogenic composition, and use for inducing immune response in rabbits.
Key summary	本案所開發的 **CpG-4609** 寡脫氧核苷酸，對兔子有良好的免疫調節力。適合用於兔子，作為免疫調節劑，佐劑，以對抗感染，或促進抗原專一性抗體的生成。
	The CpG-4609 oligodeoxynucleotide developed in this study exhibits good immunomodulatory activity in rabbits. It is suitable for use in rabbits as an immunomodulator, adjuvant, to combat infection, or to promote the production of antigen-specific antibodies.
Targeted indication	**Anti-infectious agent for rabbit. Rabbit polyclonal antibodies. Rabbit mono-clonal antibody.**
Status	**Pre-clinical study with animal model**
Key features	● **CpG-4609 has good immunostimulatory activity in rabbits.** ● **CpG-4609 can activate rabbit TLR9.** ● **CpG-4609 can promote the expression of various cytokines in rabbits.** ● **CpG-4609 can be used as an adjuvant to boost antigen-specific antibody production in rabbits.**
Market	**Anti-infectious agent for rabbit.** **Producing rabbit based antibodies for research or therapy.**
Mode of Action	● **CpG -ODN comprising GACGTT or AACGTT motif with 11-14 nucleotides are demonstrated to have potent immunostimulatory activity to rabbit TLR9.** ● **CpG-4609 one of these CpG-ODN stimulates TLR9 activated immune response of rabbits.** ● **Administering of an effective amount of immunogenic composition comprising an antigen and CpG-4609 can boost a less toxic and potent antibody response in rabbits.**

Experimental results	● **CpG-4609 for effective activation of rabTLR9** ● **CpG-4609 activates antigen-nonspecific immune responses including cytokine and total antibody productions in rabbits.** ● **CpG-4609 induces an antigen-specific cytokine responses in rabbits.** ● **CpG-4609 induces an antigen-specific antibody production in rabbits.** ● **CpG-4609 induces a less toxic immune response in rabbits.**
Intellectual property	**1. Taiwan patent (TW I535451)** **2. US patent (US 10337017)** **3. Mainland China patent (CN 105530957)** **4. Hong Kong patent (HK 40045789)**
Selected Publication	**1. Development of CpG-oligodeoxynucleotides for effective activation of rabbit TLR9 mediated immune responses. Chuang TH, Lai CY, Tseng PH, Yuan CJ, Hsu LC. PLoS One. 2014 Sep 30;9(9):e108808.** **2. Activation of rabbit TLR9 by different CpG-ODN optimized for mouse and human TLR9. Liu J, Xu C, Liu YL, Matsuo H, Hsieh RP, Lo JF, Tseng PH, Yuan CJ, Luo Y, Xiang R, Chuang TH. Comp Immunol Microbiol Infect Dis. 2012 Sep;35(5):443-51.**
Business opportunity	**Anti-infectious agent for rabbit. Generating rabbit based antibodies for research or therapy.**