Technology/ Title	BPR1M492/ A MOR/NOP Dual Agonist as a Safe Pain Killer- Novel and Fast Acting Opioid Analgesic	
Subtitle		
Technology Type	☐Biotechnology	☐Device/Diagnostics
	■Pharmaceutical	☐Others:_____
Contact Person	Name: Cindy Hsieh	Title: Manager
	Telephone(work): +886-37246166-33209	Mobile:
	Email: wenchuan@nhri.edu.tw	
Link	https://ibpr.nhri.edu.tw/en/index.php/shau-hua-ueng/	
Technology Description	This technology demonstrated the antinociceptive effect 67 times more potent than morphine while maintaining a higher level of safety. There are five notable advantages listing 1. **Potent Pain Relief:** The compounds in this invention demonstrate a potent analgesic effect, superior to morphine by 67-folds. 2. **Rapid Onset of Action:** Rapid absorption leads to pain relief within five minutes after subcutaneous injection, significantly faster than morphine's 20 minutes. 3. **No Tolerance Development:** Continuous administration of the compounds for five days does not result in a decrease in efficacy, avoiding the development of tolerance. 4. **Mild Impact on the gastrointestinal function:** The degree of constipation induced is milder compared to morphine. 5. **High Safety:** The ration of maximum tolerated dose to the ED_{50} of antinociception is significantly higher than morphine, revealing superior safety to morphine.	

Intellectual Property	US provisional patent (in application) US 10597378B2 TW I650313B
Key Publications	1. Chao, P.-K.;† Ueng, S.-H.;† Ou, L.-C.; Yeh, T.-K.; Chang, W.-T.; Chang, H.-F.; Chen, S.-C.; Tao, P.-L.; Law, P.-Y.; Loh, H. H.; Cheng, M.-F.; Chen, C.-T.; Shih, C.; Yeh, S.-H.* 1-(2,4-Dibromophenyl)-3,6,6-trimethyl-1,5,6,7-tetrahydro-4*H*-indazol-4-one: a novel opioid receptor agonist with less accompanying gastrointestinal dysfunction than morphine. *Anesthesiology* **2017**, *126*, 952. 2. Chen, S.-R.; Ke, Y.-Y.;† Yeh, T.-K.;† Lin, S.-Y.; Ou, L.-C.; Chen, S.-C.; Chang, W.-T.; Chang, H.-F.; Wu, Z.-H.; Hsieh, C.-C.; Law, P.-Y.; Loh, H. H.; Shih, C.; Lai, Y.-K.;* Yeh, S.-H.;* Ueng, S.-H.* Discovery, structure-activity relationship studies, and anti-nociceptive effects of *N*-(1,2,3,4-tetrahydro-1-isoquinolinylmethyl)benzamides as novel opioid receptor agonists. *Eur. J. Med. Chem.* **2017**, *126*, 202.
Business Opportunity	Technology transfer, industry cooperation