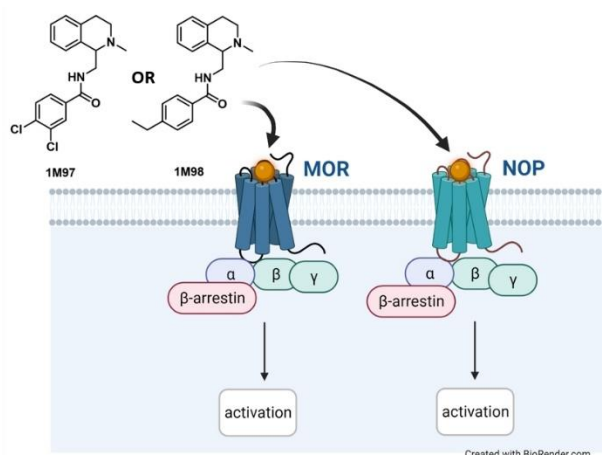


Technology/ Title	BPR1M492/ A MOR/NOP Dual Agonist as a Safe Pain Killer- Novel and Fast Acting Opioid Analgesic		
Subtitle			
Technology Type	<input type="checkbox"/> Biotechnology	<input type="checkbox"/> Device/Diagnostics	
	<input checked="" type="checkbox"/> Pharmaceutical	<input type="checkbox"/> Others: _____	
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Link	<a href="https://ibpr.nhri.edu.tw/en/index.php/shau-hua-ueng/">https://ibpr.nhri.edu.tw/en/index.php/shau-hua-ueng/</a>		
Technology Description	<p>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</p> <ol style="list-style-type: none"> <li><b>Potent Pain Relief:</b> The compounds in this invention demonstrate a potent analgesic effect, superior to morphine by 67-folds.</li> <li><b>Rapid Onset of Action:</b> Rapid absorption leads to pain relief within five minutes after subcutaneous injection, significantly faster than morphine's 20 minutes.</li> <li><b>No Tolerance Development:</b> Continuous administration of the compounds for five days does not result in a decrease in efficacy, avoiding the development of tolerance.</li> <li><b>Mild Impact on the gastrointestinal function:</b> The degree of constipation induced is milder compared to morphine.</li> <li><b>High Safety:</b> The ration of maximum tolerated dose to the ED<sub>50</sub> of antinociception is significantly higher than morphine, revealing superior safety to morphine.</li> </ol>		

Intellectual Property	US provisional patent (in application) US 10597378B2 TW I650313B
Key Publications	<p>1. Chao, P.-K.;<sup>†</sup> <u>Ueng, S.-H.</u>;<sup>†</sup> 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-4H-indazol-4-one: a novel opioid receptor agonist with less accompanying gastrointestinal dysfunction than morphine. <i>Anesthesiology</i> <b>2017</b>, <i>126</i>, 952.</p> <p>2. Chen, S.-R.; Ke, Y.-Y.;<sup>†</sup> Yeh, T.-K.;<sup>†</sup> 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.; * <u>Ueng, S.-H.</u> * Discovery, structure-activity relationship studies, and anti-nociceptive effects of <i>N</i>-(1,2,3,4-tetrahydro-1-isoquinolinylmethyl)benzamides as novel opioid receptor agonists. <i>Eur. J. Med. Chem.</i> <b>2017</b>, <i>126</i>, 202.</p>
Business Opportunity	Technology transfer, industry cooperation



Pain relief, side-effects

MOR

NOP

Reduce side-effects

- Potent anti-nociceptive effect.
- Fewer adverse-effects, such as:
  - Tolerance, **respiratory suppression**, cardiovascular function inhibition, **gastrointestinal function inhibition**, sedation, **dependence**, withdrawal symptom.
- To avoid drug abuse and addiction from origin.