Technology/ Title	BPR1M492–A Novel and Fast Acting Opioid Analgesic	
Subtitle		
Technology Type	☐ Biotechnology ■ Pharmaceutical	☐Device/Diagnostics
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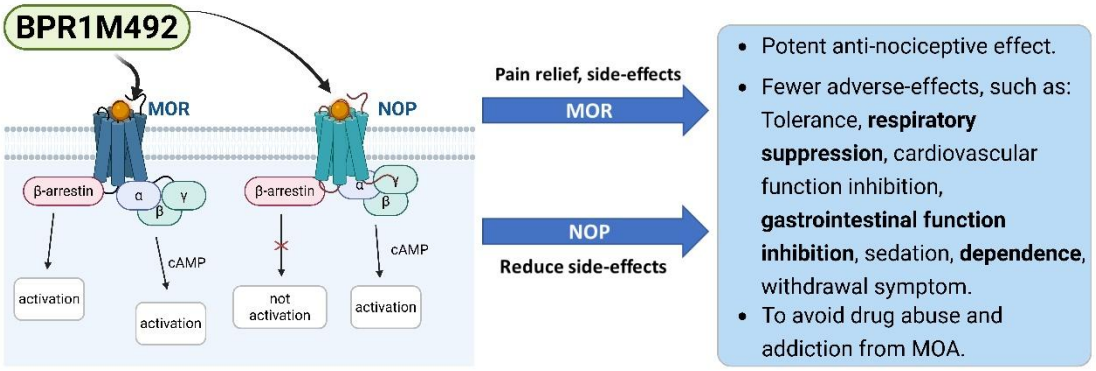
Technology Description	This technology is a fast-acting dual-agonist that simultaneously activates μ-opioid receptor and nociceptin receptor, exhibiting high safety. There are five notable advantages listing 1. **Potent Pain Relief:** The compounds in this invention demonstrate a potent analgesic effect, superior to morphine by 40-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, PCT, Taiwan patents (in application) US 10597378B2 TW I650313B	
Key Publications	1. BPR1M97, a dual mu opioid receptor/nociceptin-orphanin FQ peptide receptor agonist, produces potent antinociceptive effects with safer properties than morphine, *Neuropharmacology* **2020**, *166*, 107678. 2. 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*, 202–217.
Business Opportunity	Technology transfer, industry cooperation

BPR1M492: A Novel and Fast-Acting Opioid Analgesic



	Olinvyk	BPR1M492 (NCE)	Morphine
			
Antinociception	Potent (4-fold to morphine)	**Potent (40-fold to morphine)**	
On-set	10 min	**< 5 min**	20 min
Incisional pain	Potent	**Potent**	No effect
Constipation	Potent	**Medium**	Potent
Tolerance	No	**No**	Yes
Maximum tolerated dose	Safe (21-fold to morphine)	**Safe (205-fold to morphine)**	
Withdrawal Symptom	Medium	**Low**	High
Cost	Chiral separation, high cost	**5-step synthesis, low cost**	**From NP, very low cost**
Dosing route	intravenous	**Microneedle patch, subcutaneous**	Oral, intravenous