E-Therm Patch

SATT NORD
Technology Transfer Office

Electro thermal matrix patch for transdermal drug delivery

Keywords

- Drug delivery
- Matrix patch
- Wearable technology
- Transdermal delivery
- Electro thermal

Intellectual Property

Priority EP patent
08/04/2019

PCT/EP2020/058239
24/03/2020

Development Status

Functional prototype

In vitro POC in mice skin

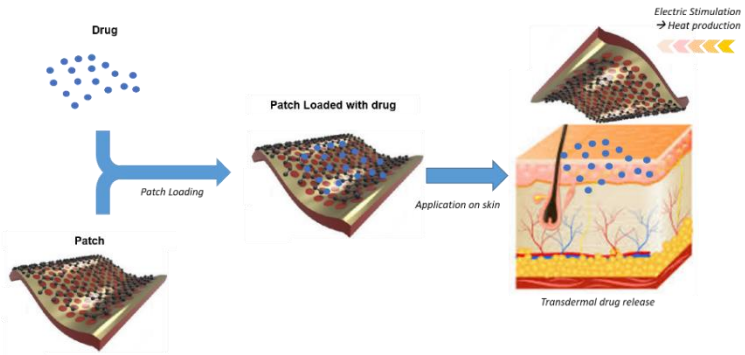
In vivo POC in C57BL / 6 mice by blood sugar measurement

Partnership

Collaboration and/or licensing

Technology

- This technology is an alternative to techniques used actually for enhancing transdermal drug delivery such as iontophoresis, electroporation, and microporation
- This technology is a new way to cross the *stratum corneum* using heat
- The heat will destabilize the *stratum corneum* allowing the medication to pass through
- This technology is expected to expand the spectrum of drugs to be administered transdermally
- The patch is composed of 3 parts:
  - a thin, flexible polymer support with high chemical and thermal resistance
  - a thin nano-perforated metallic film transforming by Joule effect an electric current into heat
  - a thin solid matrix containing a drug solution or suspension to be administrated



Benefits

- Non invasive and painless
- Usable for molecules over 500 Da (peptides, antibodies, nucleic acids)
- Usable for non-lipophilic molecules
- Reproducible
- Can be developed in many different sizes (size determines the level of energy required)
- Fast temperature increase
- Drug can be delivered on demand
- High and easy loading of drugs
- Delivery can be set up through smartphone apps
- A fixed electrical energy by cm² is required to obtain the thermal effect needed (±50°C)
- The electrical energy required can be obtained by adjusting the amperage or the voltage
- Powered by AA batteries
- pH 5 to 10

Applications

- Delivery of high molecular weight drugs such as insulin
- Transdermal delivery of vaccines

contact

François-Xavier Denimal
Business Developer
+ 33 6 13 84 36 28
Francois-xavier.denimal@sattnord.fr

find other technologies on
www.sattnord.fr

SATT Nord
25, avenue Charles St Venant – 59800 LILLE – France
+33 3 28 36 04 68 – tech@sattnord.fr

membre SATT Réseau