



**MIRADA**  
PHARMACEUTICALS

**Liqui-Patch®**

Localized, Spray Delivering  
APIs Efficiently and Safely

## Drug Delivery Technology for Dermatological Conditions and Hormone Replacement Therapies

**MIRADA**  
PHARMACEUTICALS

We identify and develop drug delivery technologies that address unmet medical needs and improve the efficacy of dermatological and hormone replacement therapies.

### What We Have Accomplished Already

**July 2014**

Mirada Pharmaceuticals, LLC  
founded to commercialize initial  
dermatology assets.

**March 2015**

Mirada identifies and closes investment  
deal for three topical prescription drugs  
orphaned due to lack of positioning.

**June 2017**

Mirada reinvests royalties to acquire an  
exclusive license in the Americas for Liqui-  
Patch® – a novel delivery technology for  
dermatological indications and HRT.

**April 2018**

Mirada continues Pre-IND work on Liqui-  
Patch® Technologies for Tinea Pedis and  
Onychomycosis trial and continues to  
explore HRT partnerships.



### THE DERMATOLOGY MARKET and Its Drug Delivery Use and Requirements

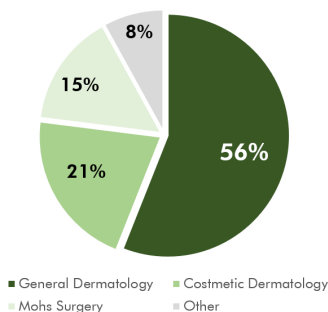


*American Academy of Dermatology*  
Excellence in Dermatology®

### Dermatology's Market

- Dermatology pharmaceuticals is a \$13.0 B market.
- General dermatology comprises the majority of conditions, including athlete's foot, dermatitis and eczema.
- This segment accounts for 56% of total dermatological revenues, or \$7.1 B.

**2017 Dermatology Market  
Breakdown by Segment**



2017 Market Size  
**\$12.7B**

2017-2020 CAGR  
**5.4%**

2020 Market Size Estimate  
**\$16.7B**

### The Increasing Role of Transdermal Drug Delivery Systems (TDDS) in Dermatology

1. Avoids the first-pass effect of metabolism associated with the oral route and allows for improved bioavailability.
2. Prolonged release of certain medications, which can improve patient adherence.
3. Minimizes adverse effects due to lower drug peak concentrations.

**Patches and gels are the two most prevalent TDDS for API while sprays and creams are more prevalent for OTC therapies. •The most widely used APIs for TDDS are:**

Steroid Hormones	Nicotine	Opioids	Antidepressants
NSAIDs	Contraceptives	BP Medicines	Anti Nauseas

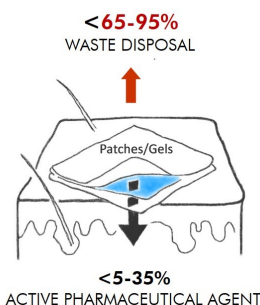
### Transdermal Patches and Gels : THE ISSUES

**Patches are "First Generation" TDDS. Though widely accepted, they have their limitations in API delivery and efficacy.**

1. Low skin penetration: crystalline APIs, higher layer thickness, application to large skin surface.
2. Low cosmetic acceptability
3. Cross contamination
4. Skin irritation
5. High ecological burden



#### API Penetration and Retention of TDDS Patches Are Low



#### Global Transdermal Drug Delivery Market (in Billions USD, LTS Gruppe, 2018)



A Novel Drug Delivery  
Platform Technology  
Improving API Delivery  
Penetration Rates and Efficacy



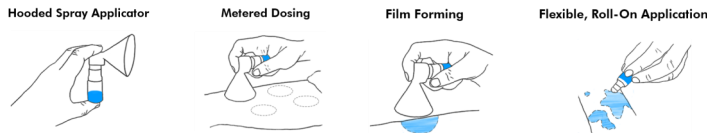
The first application of our  
TDDS technology addresses  
the \$3.0 B market for topical  
antifungal therapies

*Liqui-Patch®*

## What is *Liqui-Patch®*

Mirada has licensed, film-forming *Liqui-Patch®* from Berlin-Based **epinamics, GmbH**. Mirada has retained exclusive marketing and distribution rights in the Americas and is actively developing *Liqui-Patch®* applications in leading **dermatological therapies for Tinea Pedis and Onychomycosis**.

**EXCLUSIVE TERRITORY:** The Americas including the US, Canada, Mexico, Central and South America



## *Liqui-Patch®* Advantages

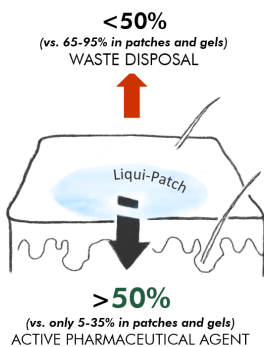
### Patented Technology

Based on a unique polyurethane-acylate film forming copolymer

### Application

- Liquid by airless pump spray
- Post-evaporation a flexible, cosmetically inconspicuous, adhering, non-sticky film is formed in less than two minutes
- API in the residual film present in dissolved form as the co-polymer inhibits its crystallization
- API permeation into the skin during evaporation and after is permanent

### *Liqui-Patch* Increases Penetration and Retention Up to 7x



1. High Skin Penetration and Efficacy  
APIs in solution  
High concentrated formulations  
Application to small skin surfaces
2. Controlled and Sustained Release
3. High Cosmetic Acceptability
4. Low Cross Contamination
5. Skin Tolerance
6. Reduced Ecological Burden

## Where *Liqui-Patch®* Can Deliver APIs

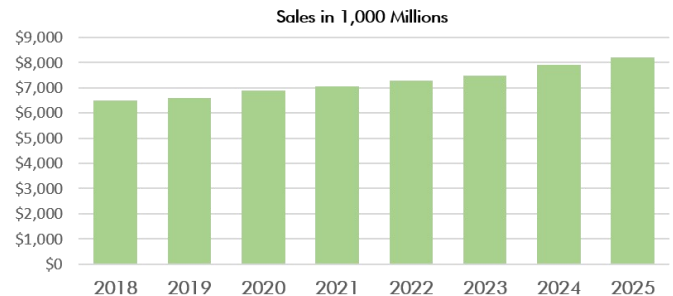
### MIRADA'S NEAR TERM FOCUS ▼

<b>Anti-mycotics</b>	Terbinafin, Amorolfine, Ciclopirox, Clotrimazole
<b>Steroid hormones</b>	Estradiol, Ethinylestradiol, Progesterone, Testosterone, Hydrocortisone
<b>Immunomodulators</b>	Tacrolimus, Imiquimod
<b>NSAIDs</b>	Diclofenac, Ibuprofen, Salicylic acid
<b>Erectile dysfunction</b>	Sildenafil
<b>Local anaesthetics</b>	Lidocaine
<b>Bladder dysfunction</b>	Oxybutinine, Darifenacin, Tolterodine
<b>Alzheimer's / Parkinson's Disease</b>	Rivastigmine, Rotigotine
<b>Cosmeceuticals</b>	5-Aminolevulinic acid, Urea
<b>Anti-histamines</b>	Loratadine, Dimetindene
<b>Retinoids</b>	Tazarotene, Bexarotene
<b>Anti-emetics</b>	Granisetron, Scopolamine

## Mirada's Target Market and Niche in Tinea Pedis and Onychomycosis Treatment

- Sales of OTC and prescription infectious disease therapies are estimated at more than \$8.0 B by 2025.
- Topical antifungal market within Dermatology specialty markets annualized sales of \$ 3.0 B.
- The global tinea pedis treatment market is estimated to reach a valuation of more than US\$ 1.7 B by 2027 from an estimated market value of around \$ 1.0 B in 2017, growing at a CAGR of 4.8% throughout the period of forecast. (CISION, November 2017)
- Current treatment options include topical, OTC creams, sprays and gels.
- Leading API prescribed by dermatologists include terbinafine, ciclopirox, clotrimazole among others.

### Infectious Skin Disease Market and Growth 2018-2025E



## Our Growth Plan

Advance the Pre-IND process of our technology and drugs  
Transition testing into clinical trials

Upon commercialization, newly approved products could be out-licensed to an established company, promoted to dermatologists via CSO, or/and we make an investment in a dedicated Mirada sales force.

Evaluate entrance to the Hormone Replacement Therapy ("HRT") market, estimated at \$20.0 B in 2017

Estrogen / progestin market estimated at \$10.0

Testosterone replacement market estimated at \$5.0 B

Move hormonal therapies into our pipeline

Female hormone replacement therapy (HRT) containing estrogens or a combination of estrogens and progestins

Male hypogonadism containing testosterone therapy

Continually review additional opportunities in therapeutic areas and associated APIs



## CONTACT US

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