

BUSINESS OPPORTUNITY WITH ESCAPE THERAPEUTICS

**Collaboration and Sale or License of:
Stem Cell and Dermatology Technologies**

TECHNICAL FIELD OF INVENTION:

- A variety of novel and potentially disruptive peptide/protein technologies for hematology and dermatology have been developed by Escape Therapeutics, Inc.
- Each technology responds to an immediate market demand and presents a scientifically and commercially differentiated opportunity

PATENT APPLICATION STATUS:

Includes a portfolio of patents/ patent applications across a number of territories. Details mentioned in supporting document “Patent Portfolio – Escape Therapeutics”

INTRODUCTION:

A series of compounds, have been developed and patented by Escape Therapeutics, Inc, (“Escape”) most of them are in various stages of clinical studies and market development.

The compounds are effective against conditions such as:

- Hyperpigmentation
- Sunless tanning/Vitiligo
- Facial Aging/ Aging
- Melanoma
- Non-healing wounds,
- Post-op scar reduction
- Rosacea
- Acne
- Eczema
- Skin volume loss

THE PRODUCT PORTFOLIO:

Escape Therapeutics, Inc (hereinafter “Escape”) has an impressive and successful product line-up, under two technology heads:

A. Regenerative Medicine:

- This line-up includes universal mesenchymal stem cell (MSC) have repeatedly demonstrated immunosuppressive, anti-inflammatory, and regenerative properties.
- Considered as candidate for treating conditions such as:
 - Type I diabetes,
 - Acute GVHD and steroid refractory GVHD,
 - Crohn's disease
 - Myocardial infarction and Chronic heart failure,
 - Osteoarthritis,
 - Scleroderma, thermal burn and radiation injury,
 - Urinary incontinence and
 - Breast cancer reconstruction

B. Dermatology:

- Escape has also developed a product line-up which treat various dermatological conditions.
- Products have shown target and treat dermatological conditions such as:
 - Hyperpigmentation
 - Skin volumization
 - Melanoma,
 - Aging,
 - Non-healing wounds
 - Post-op scar reduction.

NCEs FOR REGENERATIVE MEDICINE:

The compounds can be broadly categorized into categories as under

1. IMMUNE SUPPRESSION:

- Escape's patented and patent pending platform technologies allow for
 - persistent immunosuppression,
 - more favorable dosing schedules, and
 - predictable clinical efficacy.

Potentially treatment for :

- Type I Diabetes
- Rheumatoid Arthritis,
- Psoriasis,
- Inflammatory Bowel Disease,
- Veterinary Medicine,
- Systemic Lupus Erythematosus,
- GVHD

2. HEMATOPOIETIC STEM CELL (BONE MARROW) TRANSPLANTATION:

- World's first universal bone marrow replacement product
- Renders HSCs invisible to the host immune system.
- Will allow patients to receive fully mismatched cells, avoid immunosuppressive therapies, and reduce or eliminate the risk of GVHD.

3. GRAFT-VERSUS-HOST DISEASE (GVHD):

- Escape's product line-up provides
 - immune-tolerant,
 - adult-derived
 - MSC product and
 - causes no end-organ damage,

STEM CELL PIPELINE:

PRODUCT	DESCRIPTION	APPLICATION(S)	STAGE
PluraStem™	Universal ESCs	Pluripotent stem cell line	Preclinical
ImmuStem™	Immune-tolerant adult-derived MSCs	Graft-versus-host disease	Preclinical
MesoStem™	Universal adult- or ESC- derived MSCs	Type I diabetes	Preclinical
Allograf™	Universal living bilayered skin substitute	Partial thickness wounds	Preclinical
GlucoStem™	Universal β cells	Type I diabetes	Research
MorphoGel™	Biocompatible scaffold	2-D stem cell culture 3-D stem cell culture Scaffold for artificial skin, for scars, burns, wounds	Pre-launch Pre-launch Launched (Eshell™)
FibroStem™	Universal fibroblasts	Skin atrophy, scars	Preclinical
OsteoStem™	Universal osteogenic progenitor cells	Acute fractures	Preclinical
Revalarin™	Ab neutralizing metastatic capability	Melanoma Pancreatic & Esophageal CA	Research
AdipoStem™	Universal adipogenic progenitor cells	Tissue Augmentation Lipoatrophy	Preclinical
HemoStem™	Universal bone marrow cells	Leukemia, post-myeloablation	Research
OsteoFuse™	Osteogenic differentiation	Acute fractures, osteoporosis	Preclinical

TYPE – I DIABETES:

- Escape's product allows for the creation of an off-the-shelf β cell
- can be transplanted into patients of any HLA type,
- without the need for lifelong immunosuppression.
- Product holds great promise to liberate type I diabetes from insulin dependence.

ORTHOPEDICS:

- Bone repair product, developed using Escape's proprietary technology,
- Is designed to improve the structure and function of injured or degenerating bone
- Remodels and lays down collagen and other extracellular matrix components normally produced within bone.
- The product has shown reduced immunogenicity profile in allorecognition studies
- Allows for the creation of an off-the-shelf extracellular matrix-producing osteogenic cell
- Can be transplanted into patients of any HLA type,
- No need for lifelong immunosuppression.

DERMATOLOGY NCEs:

The compounds can be broadly categorized into categories as under

1. SKIN LIGHTENING:

- Products are
 - Capable of inhibiting tyrosinase activity
 - devoid of cytotoxicity towards melanocytes and fibroblasts
 - Possible to use long-term
 - In all skin types.
- The compounds demonstrate significantly higher potency than HQ against tyrosinase in preclinical studies

2. WOUND CARE AND SCAR REPAIR:

- Products can be used for Partial Thickness Wounds and Scars.
- Can be used in patients of any HLA type without the need for adjunctive immunosuppression, HLA matching, or autologous sourcing.
- Product also
 - promotes tissue regeneration,
 - lacks immunogenicity,
 - Has unique skin-like matrix properties
- Products have shown to promote microvascular coagulation without thermal or chemical tissue injury.

3. SKIN ATROPHY:

- Products aid skin volume restoration
- Has reduced immunogenicity,
- Are designed to improve the structure, function and appearance of skin damaged by
 - aging process,
 - scarring,
 - medications,
 - endocrine disorders,
 - HIV.
- Product remodels and lays down collagen, elastin, and other extracellular matrix components normally produced within the dermis.

DERMATOLOGY PIPELINE:

PRODUCT	TARGET	EFFECT	CONDITION	PUBLICATION/ PATENT
ET1, ET2, ET3	Tyrosinase	Inhibition	Hyperpigmentation	Yes/ Pending
ET4, ET5	Tyrosinase	Stimulation	Sunless tanning/ Vitiligo	Yes/ Pending
ET6	Senescence pathway	Anti-aging	Facial Aging	Yes/ Pending
ET7	Senescence pathway	Anti-aging	Facial Aging	Yes/ Pending
ET8, ET9	Apoptosis	Toxic to melanoma	Melanoma	Yes/ Pending
ET6, ET10	Collagen/ Elastin	Increase	Aging	In Progress
PluraStem™	Stem Cell Serum	Anti-aging	Aging	Yes/ Pending
MorphoGel™	Wound Healing	Hydrogel	Non-healing wounds, post-op scar reduction	Yes/ Issued
ImmuStem™	Inflammation	Anti-inflammatory	Rosacea, acne, eczema	Yes/ Issued
ImmuStem™	Inflammation	Anti-inflammatory	Rosacea, acne, eczema	Yes/ Issued
MatriCel™	MSC differentiation	Fibroblast pattern	Skin volume loss	Yes/ Issued

HYPERPIGMENTATION :

- Oligopeptides capable of inhibiting the activity of tyrosinase
- Oligopeptides are comprised of a chain of naturally occurring amino acids
- Are devoid of cytotoxicity towards melanocytes and fibroblasts
- Significantly reduces the adverse effects
- Long-term use possible
- Works all skin types.
- Inhibits tyrosinase 2.5 times more effectively than HQ

HYPOPIGMENTATION:

- Products are effective against improved appearance of Hypopigmentation, including
 - Vitiligo
 - Hypopigmentation due to laser or other injury.
 - Other hypopigmentary disorders
- Products directly stimulates melanin synthesis as against the currently available camouflage or oral therapies
- Non-toxic to human fibroblasts,
- Will not cause thinning of the skin
- Safe for the prolonged improvement of vitiligo

MELANOMA CELLS:

- Escape has developed short chain peptide for the treatment of melanoma
- Selectively targets melanoma cells
- Has the ability to reverse the progression of melanoma
- It is non-toxic to human fibroblasts
- Less toxic to human melanocytes
- Can also used as a reparative agent, for use as
 - sunscreens,
 - facial creams
 - body lotions

PARTIAL THICKNESS WOUNDS:

- Escape's product is
 - a permanently engrafting,
 - immune-tolerant,
 - bilayered,
 - living human skin equivalent
- Is able to provide a 3-D matrix composed of fully defined, animal-free proteins and/or synthetic biocompatible polymers and
- Can be used in patients of any HLA type without the need for adjunctive immunosuppression, HLA matching, or autologous sourcing.
- Product promote wound healing for
 - non-healing wounds and ulcers
 - surgical wounds
 - diabetic ulcers
 - scar prevention
- Also developed a patented hybrid hydrogel that supports xenogeneic human MSC engraftment in vivo.

SCAR TREATMENT:

- Product is well suited to address the burgeoning market need for better aesthetic outcomes following surgery and/or skin injury
- Product promotes tissue regeneration
- Lacks immunogenicity
- Unique skin-like matrix properties distinguish it from competing products which target bone and cartilage not skin repair.

SKIN ATROPHY:

- Skin volume restoration product to improve the structure, function and appearance of skin damaged by
 - the aging process,
 - scarring,
 - medications,
 - endocrine disorders
 - HIV.
- Reduced immunogenicity profile in allorecognition studies
- Allows for the creation of an off-the-shelf extracellular matrix-producing skin cell that can be transplanted into patients of any HLA type, without the need for lifelong immunosuppression.
- The product is useful for clinical indications such as
 - Wrinkles,
 - Scars (acne and other causes),
 - Lipoatrophy (aging, medications, HIV),
 - Dermal atrophy (intrinsic aging, UV),
 - Augmentation of lip, breasts

COMPOUNDS FOR ANTI INFLAMMATION OF SKIN:

- Soluble protein that are effective for anti-inflammation and its anti-inflammatory effect
- Identified as specific to one protein
- The protein exhibits T Cell response that assists in regulating inflammatory response,
- Immunotherapy for acne/rosacea

OBJECTIVES OF ESCAPE THERAPEUTICS:

- Escape is open to suitable sale or license of its technologies, products and other assets
- Escape is also open to getting into strategic alliances and/or co-development
- Amongst all its product line-up, Escape is more upbeat and interested in a suitable arrangement for its Skincare product line, particularly product(s) for skin lightening and hyperpigmentation
- Since the skin lightening market has not seen any legitimate science-backed innovation for the past 2 decades, Escape feels it is ripe for disruption and thus will then launch ET1 as a novel, differentiated, patent protected, skin lightening product that can be used safely for >8 weeks in all skin types.
- Escape plans to finalize its formulations, identify a domestic manufacturer, then complete stability testing,RIPT cosmetic allergy testing, and small (10-25) proof-of-concept patient trials in parallel with developing product names and packaging.
- Successful clinical trials can be leveraged up (prescription) and down (direct-to-consumer) vertical channels by increasing or reducing the concentration of

ARRANGEMENTS AND COLLABORATIONS OF ESCAPE THERAPEUTICS:

- Escape has already developed certain arrangements to exploit the market. Such arrangements can be discussed elaborately once an interest is shown by an entity and a Non-Disclosure Agreement is signed
- In 2016, Escape sold its hydrogel technology to Matrix Technologies
- In 2018, Escape sold its universal stem cell technology to Agex Therapeutics
- Discussions are on-going for other suitable commercial arrangements including for co-development, co-marketing, exclusive manufacturing, distribution or sale or product(s) etc.

ABOUT INVENTOR:

- Dr. Basil M. Hantash, MD, PhD, MBA is the Founder, Chairman & CEO of Escape Therapeutics
- Dr. Hantash is a veteran of regenerative medicine, with over 25 years of life sciences research across multiple disciplines and over 15 years of clinical practice as a dermatologist
- Dr. Hantash is serial entrepreneur successfully founding companies that work on medical devices, diagnostics, small molecule drugs, biomaterials, cosmeceuticals, nutraceuticals, cell therapy, and nanotechnology
- Dr. Hantash has performed over a dozen clinical trials and FDA-approvals, has over 165 scientific peer-reviewed articles, abstracts, and chapters and over 100 issued and pending patents
- Dr. Hantash is serving on 6 BODs and 5 SABs, creating over \$1 B of shareholder value;
- Dr Hantash has completed 4 acquisitions he is helping raise over \$26M for start-ups

ESCAPE THERAPEUTICS:

- A research-oriented biotechnology company focused on allogeneic stem cell therapies.
- Created one of the world's first allogeneic, "off-the-shelf" therapy capable of being used in any patient irrespective of their HLA profile.
- Also has a pipeline and portfolio of innovative products for patients suffering from various hematological and dermatological conditions.

EXPECTATIONS:

- Inventor/ Escape seeks alliance with potential licensees to assign Licensing Rights, including on patents.
- Inventor/ Escape is also interested in Sale of the technology, including patents

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