EspeRare enters into partnership with Dermelix Biotherapeutics to develop DMX-101, an *in utero* treatment for X-Linked Hypohidrotic Ectodermal Dysplasia (XLHED)

- **DMX-101 has the potential to become the first ever *in utero* administered drug to correct a genetic disease before birth**

- **EspeRare and Dermelix aim to initiate the pivotal trial in Europe and then in the US in the second half of 2019**

- **Both partners have signed an Ethics and Social Responsibility Charter under which they commit to continuously engage with the patient community during the development of the therapy**

Geneva, Switzerland – 2 April, 2019 – EspeRare, a not-for-profit organization dedicated to accelerating the development of rare diseases treatments, today announced that it has entered into an agreement with Dermelix Biotherapeutics for the co-development of its lead programme, DMX-101. DMX-101 is a novel *in utero* protein replacement therapy for the treatment of X-Linked Hypohidrotic Ectodermal Dysplasia (XLHED), a rare pediatric genetic disease.

Under the terms of the agreement, EspeRare will sponsor the development of DMX-101 (previously ER-004) in Europe, where it was accepted under the EMA's PRIME (Priority Medicines) scheme and benefits from Orphan Drug Designation. Dermelix will sponsor the development of DMX-101 outside of Europe and will be responsible for its commercialization worldwide.

XLHED is a rare genetic disorder affecting ectodermal structures including sweat glands, respiratory glands, skin, hair and teeth. Clinical manifestations of XLHED are severe and can include life-threatening episodes of hyperthermia, heat intolerance, and an increased risk of serious respiratory tract infections. There are currently no approved therapies for treatment of XLHED and the current standard of care is only palliative.

DMX-101 is a protein replacement therapy designed as a substitute for endogenous EDA, a protein missing in XLHED. It is administered during late foetal development through a single-course treatment delivered into the amniotic fluid. This approach has already demonstrated significant benefits in a prenatal study, the results of which were recently published in the New England Journal of Medicine[1] and featured in Nature Medicine's 2018 Research Highlights[2].

In the second half of 2019, EspeRare and Dermelix anticipate the start of patient enrollment into a pivotal study for DMX-101, first in Europe and then in the US, with the aim of moving the treatment towards market approval. In the US, DMX-101 benefits from Orphan Drug Designation and Fast Track Designation by the FDA.

Caroline Kant, Founder and CEO of EspeRare, commented: "Patients with rare diseases so often lack the treatment options they need. This partnership with Dermelix represents an amazing opportunity to bring an innovative therapy to patients and to potentially change their lives radically. Beyond XLHED, we are committed to paving the way for other prenatal treatments to correct genetic diseases before birth."

Dr. Nick France, Chief Medical Officer of Dermelix, commented: "It is both tremendously exciting and humbling to be able to participate in such a groundbreaking program. The ability to correct a severe disease before birth represents a huge step forward in therapeutic paradigms. We look forward to a productive collaboration with EspeRare and working hard for families with XLHED."

In line with EspeRare's model and in order to reflect EspeRare and Dermelix' common values and patient-centric approach, the agreement also includes an Ethics and Social Responsibility Charter under which both partners have committed to fully and transparently engage the patient community. Through a Patient Advisory Council, the partners will streamline information transfer in order to provide valuable inputs for the development of DMX-101.

References

1. N Engl J Med 2018; 378: 1604-1610
2. Nature Medicine 2018; 24: 702

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About XLHED

XLHED is a severe, chronically debilitating and life-threatening rare disease affecting approximately 4/100,000 live male births every year. XLHED is caused by genetic mutations in the EDA gene, a gene that encodes for an important ectodermal developmental protein, EDA. The absence of functional EDA results in abnormal development of the skin, sweat glands, sebaceous glands, hair, oral cavity, and respiratory mucosal glands resulting in serious life-threatening clinical manifestations from birth including hyperthermia, craniofacial anomalies and recurrent respiratory infections that impair quality of life in patients and their families.
For more information, please visit https://bit.ly/2KbMqGa

About EspeRare

EspeRare is a Swiss not-for-profit organization that is committed to improve the lives of children with life-threatening rare diseases. EspeRare addresses the unmet medical needs of these children by uncovering the potential of existing treatments. EspeRare's innovative model combines pharmaceutical know-how with philanthropic, public and private investments to develop and bring to life these discontinued

therapies. With its unique patient-centered approach to drug development, EspeRare engages the patient community at each step of the process, with the intent of giving children and their families fair access to these therapies and a new hope for the future. For more information, please visit https://esperare.org/en/node/13

About DMX-101

DMX-101 is a fully humanized EDA molecule consisting of the human IgG1 Fc sequence linked to the human EDA TNF binding domain. Preclinically, DMX-101 has been shown to bind to the receptor EDAR resulting in activation of the NFκB signaling pathway, which triggers the transcription of genes involved in the normal development of multiple tissue types. DMX-101 is the first and only treatment specifically targeting XLHED. Administered during the third trimester of pregnancy, it has the potential to become a "single course" treatment, significantly improving symptoms of the disease throughout patients' lives. This approach has already demonstrated significant potential in in a case series of three patients treated in utero with DMX-101 during the third trimester of pregnancy. The treatment normalized sweat gland function and associated thermoregulation, and improvement in dentition and respiratory function were observed. These results were recently published in the New England Journal of Medicine[1] and featured in Nature Medicine's 2018 Research Highlights[2].

For more information, please visit https://esperare.org/en/er-004-x-linked-hypohidrotic-ectodermal-dysplasia

About Dermelix Biotherapeutics

Dermelix is a privately-held, clinical-stage biopharmaceutical company focused on the development of innovative therapies for rare and debilitating dermatologic conditions with high unmet medical need. For more information, please visit https://www.dermelix.com/.