BIODERMA CONGRESS REPORTS

ESPD 2026

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

siRNA therapeutics in development for skin disease

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Speaker: Prof. Dr. Veronica Kinsler (Professor of Paediatric Dermatology and Dermatogenetics, London).

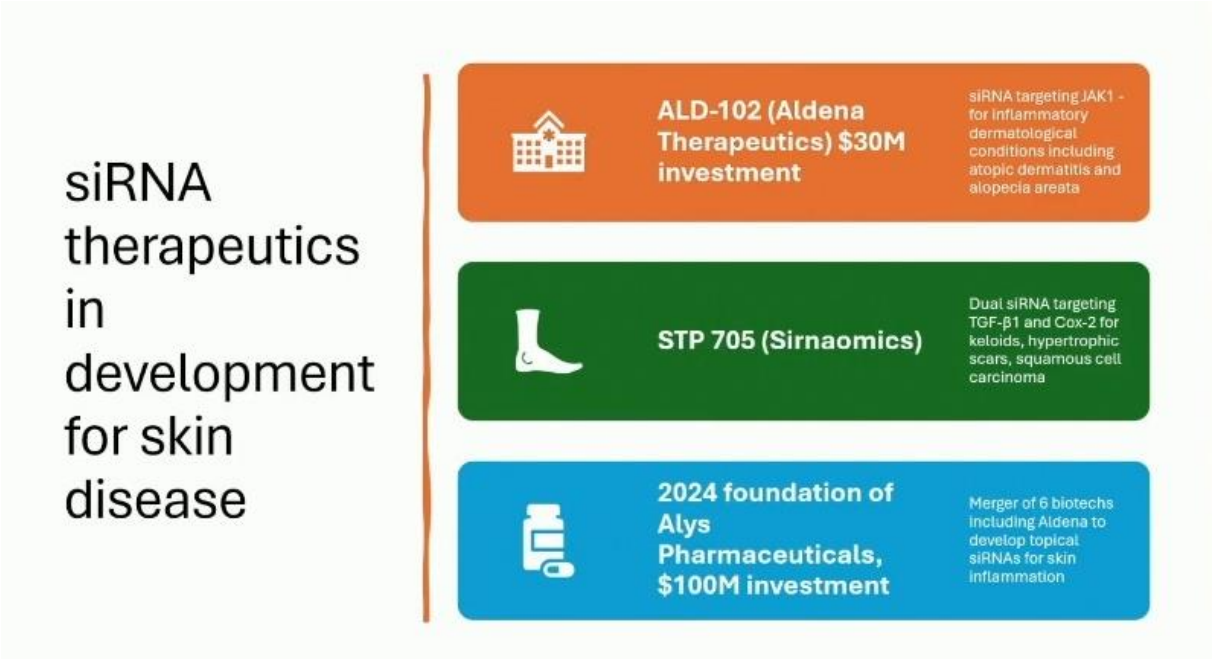
The first plenary lecture at this year's 25th Congress of the European Society of Pediatric Dermatology was delivered by Prof. Dr. Veronica Kinsler - Professor of Paediatric Dermatology and Dermatogenetics at Great Ormond St Hospital for Children in London. She is an international expert in children's skin diseases. She has particular expertise in children's moles, all types of naevi, birthmarks, problems of pigmentation, rare or undiagnosed skin diseases, and genetic skin diseases. She was a President of the European Society of Paediatric Dermatology 2020-2022. Professor Kinsler said she was dedicating her lecture to Professor John Harper.

In her plenary lecture, Prof. Kinsler spoke about the future of genetic therapy in pediatric dermatology and for currently FDA-approved gene therapies for the treatment of rare skin diseases, as well as the new plans and projects for the treatment of congenital giant nevi. The most interesting part of Prof. Kinsler's lecture was that she have designed a new genetic therapy that could alleviate debilitating giant moles in a rare skin condition.

She said that, severe cases of congenital melanocytic naevi (CMN) are associated with substantial cutaneous and neurological morbidity and an excess childhood mortality from melanoma. Effective treatments are lacking. This mosaic disorder is caused most commonly by a heterozygous oncogenic variant NRAS c.181C>A, p.(Q61K). As NRAS has multiple downstream effectors we have sought to treat this disease by precision genetic therapy rather than downstream pathway inhibition, hypothesising that silencing of the oncogenic allele may remove cellular protection from RAS induced apoptosis. Using a lead short interfering RNA (siRNA) selected for allele specificity and fewest off-target effects on RNAseq she has shown significant selective knockdown of variant mRNA expression and knockdown of NRAS protein levels. A single treatment to primary naevus cell cultures leads to normalisation of MAPK pathway activation, reduction in proliferation rate, and importantly, triggering of apoptosis. She goes on to demonstrate that receptor-targeted lipid nanoparticles (RTNPs) successfully protect siRNA from degradation, deliver cargo to naevus cells in patient skin explants and improve naevus cell targeting. A single intradermal injection of siNRASQ61K-RTNPs into transgenic mice harbouring humanised NRASQ61K confirms significant selective knockdown of the variant NRAS allele in vivo. Successful targeting of variant NRAS and triggering of naevus cell apoptosis now paves the way for clinical trials of this genetic therapy for CMN.

Prof. Kinsler also presented the design of the study that will be conducted among human individuals with giant congenital nevi. They gave injections containing the therapy to mice with CMN, which silenced the NRAS gene after just 48 hours. They also tested it in cells and whole skin sections from children with CMN.

Silencing the gene triggered the mole cells to self-destruct. The research was funded by the National Institute for Health and Care Research, Caring Matters Now Charity and Patient Support Group, LifeArc and the NIHR Great Ormond Street Hospital Biomedical Research Centre. The new genetic treatment could be used to reverse moles, and therefore prevent cancer. It could also potentially reverse other types of at-risk moles as an alternative to surgery.



New therapies approved by FDA and EMA for the treatment of recessive dystrophic epidermolysis bullosa.

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

Speakers: Prof. Maya El Hachem (Head of the Dermatology Unit in Ospedale Pediatrico Bambino Gesu' Roma, Italy) and Prof. Peter Marinkovich (Director Blistering Disease Clinic, Department of Dermatology, Stanford University School).

Prof. Marinkovic and Prof. Maya El Hachem presented the session Dystrophic Epidermolysis Bullosa: current understanding, treatment and clinical practice highlights. Prof. Maya El Hachem is a Head of the Dermatology Unit in Ospedale Pediatrico Bambino Gesu' Roma, Italy. She is a co-ordinator ERN Skin Disorders, President-elect of the Genodermatoses Network Scientific and Past President of the Italian Society of Pediatric Dermatology (2013 – 2015). Associate Professor of Dermatology Peter Marinkovich, M.D., is a Director Blistering Disease Clinic, Department of Dermatology, Stanford University School of Medicine and a Investigator in National Epidermolysis Bullosa Registry, Stanford University School of Medicine. He is a member of the Program in Epithelial Biology and the Stanford Cancer Biology Program. Dr. Marinkovich's research focuses on pathogenesis and therapy of epidermolysis bullosa, autoimmune blistering diseases, psoriasis and skin cancer.

Prof. Maya El Hachem spoke about the complications of wound healing in patients with dystrophic epidermolysis bullosa and the need for early management, includes not only topical epithelialization therapy, but also reduction of pain and itching, as well as the prevention of complications such as: local infection, sepsis, fibrosis, development of chronic wounds, anal stenosis, early development of squamous cell carcinoma of the skin, as well

as extracutaneous complications - pseudosyndactyly, joint contractures leading to functional difficulties, chronic anemia, delayed physical development, late puberty, development of cardiopathy and nephropathy.

All of the above complications of the disease increase the number of hospitalizations and the cost of treatment for patients, and have a huge impact on their quality of life, subsequently leading to poor adherence to therapy. In conclusion, she emphasized that dystrophic epidermolysis bullosa is a chronic disease with a great impact on the quality of life of patients. Early management is required to prevent mucocutaneous and extracutaneous complications, as well as to improve the quality of life of patients. Topical treatment for wounds in dystrophic epidermolysis bullosa is more effective when applied to more recently occurring wounds.

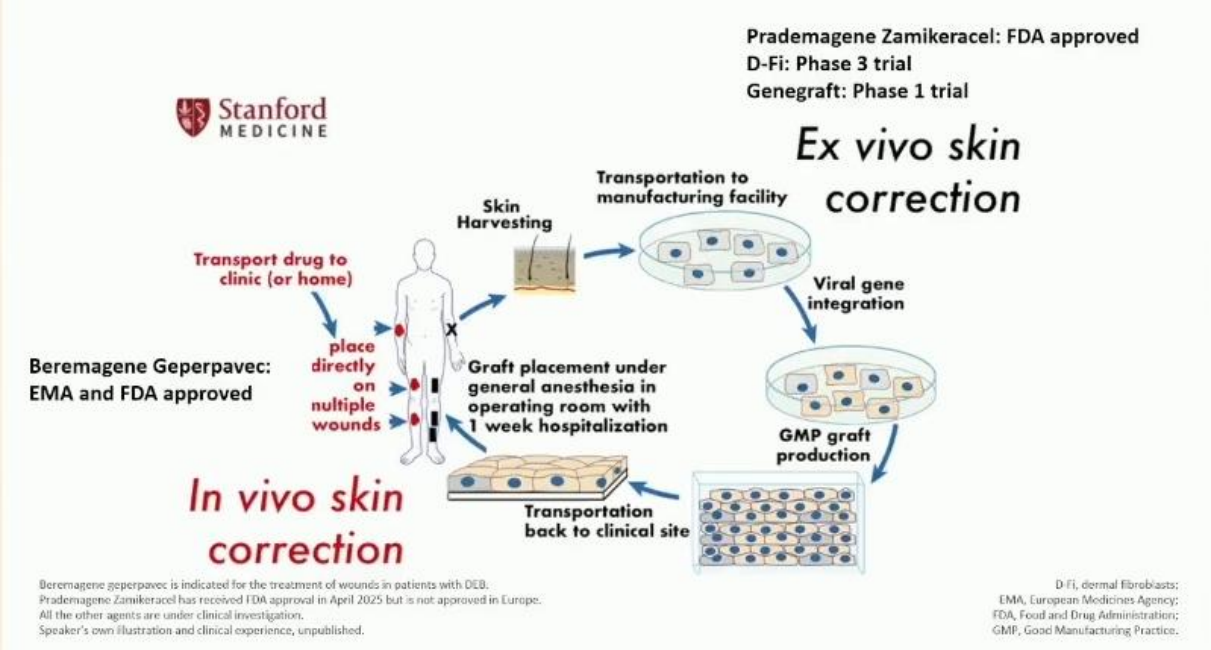
Prof. Peter Marinković reminded the audience that the FDA and EMA have approved 2 topical therapies for the treatment of wounds in EB. One of them -Oleogel S10 - is a maintenance wound care. It has achieved its endpoint, as the application of Oleogel results in a high percentage of patients with dystrophic EB closing their target wounds within 45 days. He said that Oleogel S10 is a well-tolerated therapy. Prof. Peter Marinković also noted the supportive treatment of pruritus with Dupilumab - a biologic approved for the treatment of atopic dermatitis and bullous pemphigoid. He cited numerous case series showing good efficacy in the treatment of EB with Dupilumab, published in recent years.

He explained the mechanism of action of a new HSV-1 based topical "in vivo" Beremagen Geperpavec (Vyjuvek, B-VEC) therapy, that restores functional Collagen VII via COLA1 gene delivery, FDA and EMA-approved. With this therapy, complete wound healing occurs in patients with recessive dystrophic epidermolysis bullosa, between 3 and 6 months. In one of the patients, therapy was completed at the end of month 17 due to complete healing of all wounds.

Prof. Marinković also gave some practical guidelines, getting best results with B-VEC gene therapy, including preparation the wound by debridement of crust and biofilm prior to applying gene therapy and using the right dressings - plain petrolatum gauze, Mepitel or Mepilex with a layer of petrolatum jelly.

Regarding the good effect of gene therapy, Prof. Marinković also emphasized the role of maximum care for the patient with recessive dystrophic epidermolysis bullosa, among which the most important are the treatment of infections and anemia, nutrition and screening every 3 months for squamous cell carcinomas of the skin. Prof. Marinković also demonstrated the topical application of B-VEC in the eyes, for the treatment of erosive lesions in a patient with recessive dystrophic epidermolysis bullosa, with surgical therapy for symblepharon lysis. The erosive lesions in the patient's right eye were completely healed 6 months after the surgical intervention and 23 B-VEC applications. No side effects were reported from this eye treatment and the patient's vision improved significantly. Unfortunately, there is no perfect medicine and Prof. Marinković highlighted the limiting factors for „in vivo“ B-VEC gene therapy – the serious immune reactions after re-administration of the vector therapy and production of anti-drug antibodies.

Prof. Peter Marinković showed results from a new safe and successful „ex-vivo“ corrective gene therapy - Prademagen Zamikeracel, for patients with recessive dystrophic epidermolysis bullosa, with a genetically corrected, autologous epidermal graft. FDA approves this second gene therapy for RDEB called Zevaskin in 2025.The results of a double-blind, randomized, open-label, phase 3 - study conducted in 2 centers, were published in the journal Lancet in 2025.



Pediatric alopecia areata

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

Speaker: Dr. Michela Starace (Dermatologist, Italy).

Dr. Michela Starace, MD, PhD is Assistant Professor and Dermatologist at the Department of Medical and Surgical Science, University of Bologna, Italy. She is Chair of EADV Hair task force and Chair of IDS trichoscopy and onychoscopy task force. Dr. Starace is Author of 203 Papers published on International Journals and 25 book chapter.

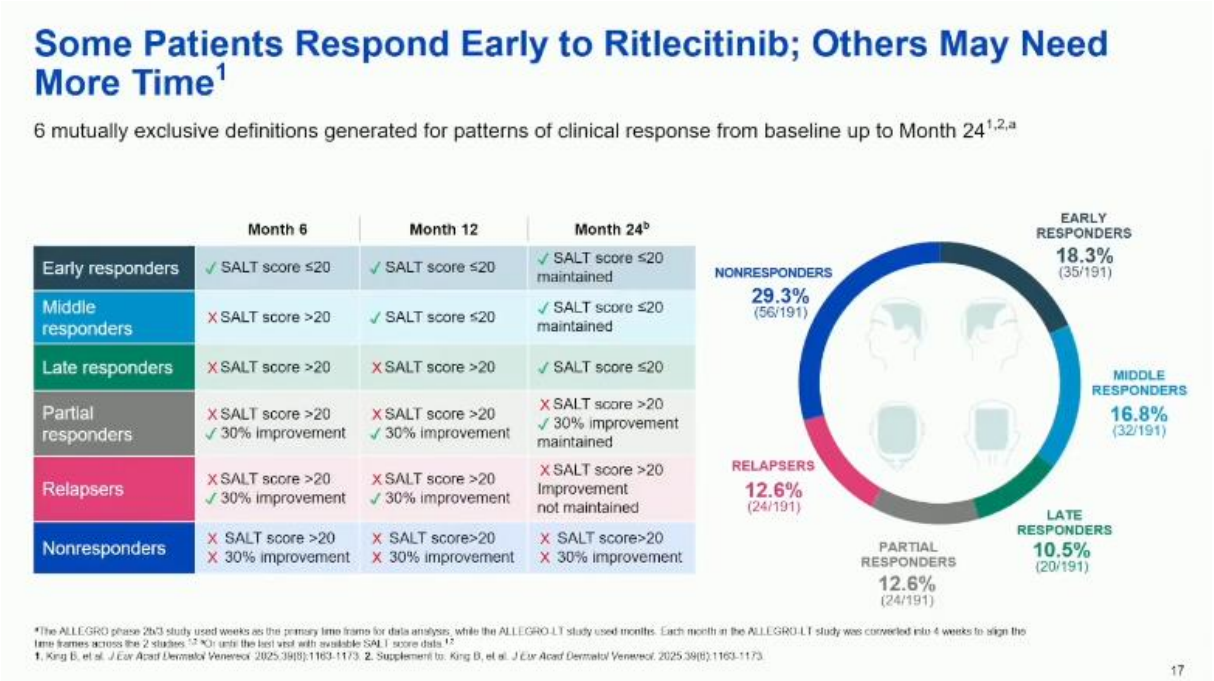
Pediatric alopecia areata is a spectrum of autoimmune non-scarring alopecia in which patients lose small patches of hair from their scalp but others lose more or all of the hair from the scalp and body, including eyebrows and eyelashes. It can be divided into AA, alopecia totalis (AT), and alopecia universalis (AU).

AA is typically characterized by localized patches of non-scarring alopecia on the scalp; 5% of AA cases will progress to more severe forms involving loss of all scalp hair (AT), loss of all hair on the scalp and body (AU), or an overlap between the two. Patients with AA have an increased risk for depression, obsessive-compulsive disorder, and anxiety. A high prevalence of psychiatric disorders has also been observed in pediatric patients: children with AA had increased rates of depression and anxiety, and adolescents with AA had increased rates of anxiety. Both adolescents and children reported lower quality of life and disturbances to daily activities. Thus, when evaluating treatment options, the effect of AA on the child's mental health must be considered. While the natural course of AA is very unpredictable, hair regrowth is possible and more likely to occur in patients with milder hair loss. A range of treatment options are available for AA, but non-prevent or alter the course of the disease. In general, not many therapies for AA have been evaluated and none have been tested in children. Despite a lack of curative or preventive options, many patients experience hair regrowth with current therapies. Systemic therapies are used in some children, including immunosuppressive therapies such as methotrexate, but the failure rate is high for these medications and the risk of side effects is higher than with topicals. Therapies based on the genetic underpinning of the disease are emerging, including JAK inhibitors. The identification of CD8 T-cell infiltration, interferon(IFN)-c, and cytokine gene expression in recent genome-wide association studies has unlocked potential targets for AA therapy. Recently, the JAK-STAT signaling pathway has been associated with common inflammatory disease mechanisms, leading to the evaluation of JAK inhibition therapy.

Few studies have looked at therapies for this disorder in children, so much of the data are derived from adult literature and describe off-label use of medication. Systemic therapies that block the immune system, including Janus kinase (JAK) inhibitors, have also been used in this disease.

Dr. Michela Starace introduced the audience to the criteria for inclusion of adolescent patients with AA on JAK inhibitor Ritlecitinib in outpatient practice. She said that screening for tuberculosis, viral hepatitis, shingles and syphilis is mandatory. Vaccination of children against chickenpox is necessary due to the frequent occurrence of Herpes zoster in children undergoing this treatment. The treatment should be monitored by examining the Complete Blood Count, markers of inflammation in the blood, biochemical indicators every 6 months of treatment.

Suitable for treatment with Ritlecitinib are teenagers over 12 years of age who have more severe forms of the disease, such as AA with the absence of eyebrows and eyelashes. They must have undergone prior therapy with local and systemic corticosteroids, against the background of which, however, the disease has progressed. It is not easy for the child's family to decide to start systemic therapy for the disease, so the selection of suitable patients is of key importance. SALT score is of utmost importance in patient selection and should be ≥20. She showed the results of an Allegro clinical study involving 109 adolescent patients with AA treated with Ritlecitinib 50 mg 2 x daily. At week 24 of treatment, 40% of them achieved a significant decrease in SALT and at the end of 24 months, 65% of them achieved SALT - 0 with full regrowth of hair on the scalp, eyebrows and eyelashes. The result was followed up until the end of the 3rd year and 89% of the patients maintained the result of the treatment, with absolute safety. However, 29% of the patients were non-responders. She showed 2 of her patients with achieved and maintained a very good effect of complete recovery at 48 months. The side effects observed over a 5-year period remain the same as in adults, the most common of which is Herpes zoster, but in children who have not had Varicella, vaccination helps to completely avoid this side effect. Unlike adults, adolescents do not experience increased cardiovascular risk, nor do they experience thrombotic events. In conclusion, Dr. Michela Starace said that the safety profile of AA treatment with Ritlecitinib is significantly safer than that in adult patients.



Prenatal Correction of X-Linked Hypohidrotic Ectodermal Dysplasia

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

Speaker: Prof. Holm Schneider (professor of pediatrics and consultant pediatrician, Germany)

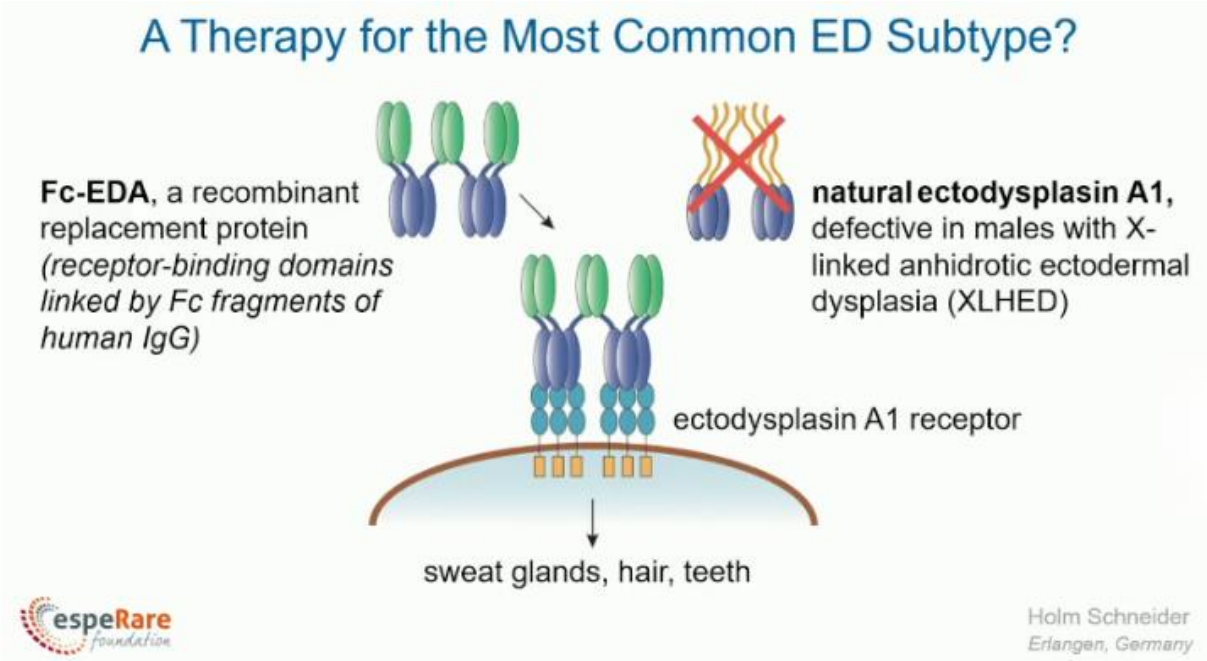
Prof. Holm Schneider has been working as professor of pediatrics and consultant pediatrician at the University Hospital Erlangen, where he also heads the interdisciplinary Center for Ectodermal Dysplasias Erlangen, the German national reference center for ectodermal dysplasias and p63-associated disorders. Current research of his team is dedicated to novel therapeutic approaches to severe genodermatoses. Prof. Schneider pioneered the prenatal drug therapy of genetic diseases.

He conducted numerous preclinical and investigator-initiated clinical studies focusing on congenital skin disorders and has been serving on medical advisory boards of various organizations. His research has been funded by the German Research Foundation and the Federal Ministry for Education and Research for 25 years. He has received numerous honors and awards, including the Gottron-Just Science Prize, the Gold medal of the Union of European Neonatal and Perinatal Societies and the Care-for-Rare Science Award for outstanding scientific contributions.

Genetic deficiency of *ectodysplasin A (EDA)* causes X-*linked hypohidrotic ectodermal dysplasia (XLHED),* in which the development of sweat glands is irreversibly impaired - an condition that can lead to life-threatening hyperthermia. During embryonic development, tissues and organs form in spatiotemporally defined successions of events until the organism has acquired its final shape. Many of these events, such as limb morphogenesis or the formation of sweat glands and other skin appendages, can be irreversibly affected if specific signals are not provided at the appropriate time. For example, deficiency of EDA, which results from loss-of-function variants of the gene EDA, causes XLHED. When recombinant Fc-EDA (a fusion protein made up of the constant domain of IgG1 and the receptor-binding portion of EDA) or an antibody that activates the EDA receptor (EDAR) was administered repeatedly into the circulation of pregnant Eda-deficient mice, the disease phenotype of the pups was corrected, yet the dams (which were homozygous for the loss-of-function Eda allele) did not benefit fromtreatment. The same was true when Fc-EDA was delivered directly into the amniotic fluid surrounding Eda-deficient fetuses.In the second approach, a single dose was sufficient to correct the disease phenotype, and maternal drug exposure was negligible. Prof. Schneider present data supporting a critical role of the neonatal Fc receptor in drug uptake from amniotic fluid. This receptor mediates uptake of IgG from mother's milk across the gut endothelium in rodents.

He also report the sustained restoration of sweating ability in three human patients with XLHED in response to prenatal treatment with Fc-EDA.

The human sweat glands formed between gestational weeks 20 and 30. Direct intraamniotic administration of the drug (recombinant Fc-EDA) at the appropriate stages of development appeared to be a promising therapeutic approach. The amniotic fluid served as a reservoir of Fc-EDA: the size of the protein limit its diffusion from the amniotic cavity and allow its uptake from the fetal gut through the ingestion of amniotic fluid. The treated infants had a normal sweat-duct density on the soles of the feet, as well as normal pilocarpine-induced sweating at 6 months of age. Various body parts were repeatedly observed to be moist. Signs of positive effects on tooth development and salivary and meibomian glands have been observed in the treated infants, as compared with the phenotypes of their untreated affected siblings. Although the rate of amniocentesis-related miscarriage is only 0.11%, Fc-EDA was not delivered before week 26 of gestation. In summary, he identified a mechanism of drug uptake into fetuses, which resulted in effective treatment of a genetic disability. Prof. Schneider showed 20 male patients with XLHED in whom the drug was introduced at 25, 27 and 30 weeks of gestation. Combined with the ability to identify affected fetuses through noninvasive sonographic prenatal screening, the approach he describe represents a new means of protein-replacement therapy to correct XLHED.



Advances in epidermal differentiation disorders

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

Speaker: Prof. Juliette Mazereeuw-Hautier (Professor of Dermatology, France)

Epidermal differentiation disorders (EDDs)

Epidermal differentiation disorders (EDDs) encompass inherited conditions characterized by abnormal epidermal differentiation, including nonsyndromic and syndromic subtypes with more extensive cutaneous involvement or palmoplantar keratoderma. Nonsyndromic EDDs (nEDDs) are defined as disorders that primarily affect large areas of skin and adnexal structures without alterations in extracutaneous tissues resulting from the underlying genetic change.

To facilitate the development of targeted therapies and to provide clinicians with clearer therapeutic guidance, the authors have developed a new nomenclature for EDDs that includes the causative altered gene and the nEDD subgroup designation, sometimes with a clinical or histological descriptor or acronym. Historically, many nEDDs have been named on the basis of phenotypic characteristics or associations that are now considered outdated or inappropriate. For example, the term „harlequin ichthyosis“ evokes potentially stigmatizing images. Similarly, the word „ichthyosis“ is derived from the Greek ichthys, meaning fish, and the Greek hystrix, meaning porcupine. As a result, the clinical relevance of the previous classification, which included eponymous and/or descriptive titles, has diminished. In the new, gene-based classification, old terms considered pejorative, such as ichthyosis, vulgaris, hystrix and harlequin have been eliminated and eponyms have been replaced. Among the 53 genetically distinct nEDDs are conditions formerly known as autosomal recessive congenital ichthyosis, erythrokeratodermia variabilis et progressiva, Hailey–Hailey disease and Darier–White disease.

Hailey-Hailey disease

Hailey-Hailey disease is a rare genodermatosis described in 1939, with an autosomal dominant inheritance pattern, characterized by compromised adhesion between epidermal keratinocytes. It has an estimated prevalence of 1/50,000, with no gender or race predilection. It results from a heterozygous mutation in the ATP2C1 gene, which encodes the transmembrane protein hSPA1C, present in all tissues, with preferential expression in keratinocytes. Mutations in the ATP2C1 gene cause changes in the synthesis of junctional proteins, leading to acantholysis. It usually begins in adulthood, with isolated cases at the extremes of life. It manifests as vesico-bullous lesions mainly in the flexural areas, which develop into erosions and crusts. Chronic lesions may form vegetative or verrucous plaques.

Pruritus, a burning feeling and pain are common. It evolves with periods of remission and exacerbation, generally triggered by humidity, friction, heat, trauma and secondary infections. The diagnosis is based on clinical and histopathological criteria: marked suprabasal acantholysis, loosely joined keratinocytes, giving the appearance of a “dilapidated brick wall”, with a few dyskeratotic cells. The acantholysis affects the epidermis and spares the adnexal epithelia, which helps in the differential diagnosis with pemphigus vulgaris. Direct immunofluorescence is negative. The main differential diagnoses are Darier disease, pemphigus vegetans, intertrigo, contact dermatitis, and inverse psoriasis. There is no cure and the treatment is challenging, including measures to control heat, sweat and friction, topical medications (corticosteroids, calcineurin inhibitors, antibiotics), systemic medications (antibiotics, corticosteroids, immunosuppressants, retinoids and immunobiologicals) and procedures such as botulinum toxin, laser and surgery. There is a lack of controlled clinical trials to support the choice of the best treatment. There are reports of controversial responses after using etanercept (anti-TNFα) with weekly doses between 25 and 50 mg. However, most reports claim against any positive effect of anti-TNFα in HHD. Recently, the use of dupilumab (anti-interleukins 4 and 13) as treatment for HHD was reported. Prof. Mazereeuw-Hautier showed results of systemic treatment with Dupilumab in 20 patients with Morbus Hailey-Hailey, which led to a significant reduction in skin inflammation after 6 months. She also showed treatment of patients diagnosed with *Pachyonychia congenita* with the local JAK-kinase inhibitor Roxulitinib, as well as systemic treatment with oral Erlotinib.

Darier disease

Darier disease is caused by mutation in the *ATP2A2* gene. This disrupts the SERCA2 pump and leads to impaired calcium homeostasis in the keratinocytes and decreased cell-cell adhesion. Darier disease presents with brownish papules mainly in the seborrheic and intertriginous areas, with a keratotic surface. These may coalesce into macerated lesions.

Typical nail changes in Darier disease include red and white longitudinal streaks ending in V-shaped notches at the free margin of the nail plates. Acrokeratosis verruciformis as well as bullous, hemorrhagic, comedonic and linear/segmental types are clinical variants of Darier disease. Darier disease is frequently associated with neuropsychiatric disorders. Acute exacerbation may be caused by superinfection with Staphylococcus aureus or herpes simplex virus. Histology in Darier disease is characterized by pronounced dyskeratosis. Keratolysis as well as antiseptic treatment to avoid superinfection are essential. Topical corticosteroids are used. Among systemic treatments, the best body of data is available for acitretin. Ablative therapies (dermabrasion, CO_2 laser, Er:YAG laser) are effective but limited by the size of the areas that can be treated. In Padua, Prof. Mazereeuw-Hautier showed results of a new systemic treatment of a 25-year-old patient with Darier disease, treated for 2 months with MEK kinase inhibitor Tramatinib, with positive effect. She explained that this is a new pathogenetic therapy for this disease, introduced thanks to the understanding that in Darier disease, we have a disruption of keratinocyte expression due to hyperactivation of MEK and ERK - the pathogenetic pathways.

Clinical Trajectories in Juvenile Scleroderma: Myths or Reality ?

Reports written by Prof. Ivelina Yordanova (dermatologist, Bulgaria)

Speaker: Prof. Francesco Zulian (Paediatric Rheumatology Unit, Department of Women's and Children's Health, Padua)

Prof. Francesco Zulian is an Associate Professor of Pediatrics at the University of Padua where he graduated from Medical School, trained in Pediatrics and specialized in Pediatric (USA 1991) and Adult Rheumatology. Since 1992 he is the Chief of the Pediatric Rheumatology Unit at the University of Padova. From 2001-2009 he acted as Chairman of the Juvenile Scleroderma Working Group of PRES (Pediatric Rheumatology European Society) and from 2006-2009, of the Italian Society of Pediatric Rheumatology. Prof. Zulian's main research interests are in Scleroderma syndromes, Kawasaki disease, Juvenile Idiopathic Arthritis (JIA), Joint Hypermobile Syndromes and JIA- related chronic uveitis. He has around 150 publications in International peer-reviewed Journals (h Index 46) and has acted also as editorial reviewer for many of them.

Localized scleroderma (LS)

Localized scleroderma (LS) is a complex disease characterized by a mixture of inflammation and fibrosis of the skin that, especially in the pediatric population, also affects extracutaneous tissues ranging from muscle to the central nervous system. Although developmental origins have been hypothesized, evidence points to LS as a systemic autoimmune disorder, as there is a strong correlation to family history of autoimmune disease, the presence of shared HLA types with rheumatoid arthritis, high frequency of auto-antibodies, and elevated circulating chemokines and cytokines associated with T-helper cell, IFNγ, and other inflammatory pathways.

This inflammatory phenotype of the peripheral blood is reflected in the skin via microarray, RNA Sequencing and tissue staining. Research is underway to identify the key players in the pathogenesis of LS, but close approximation of inflammatory lymphocytic and macrophage infiltrate with collagen and fibroblasts deposition supports the notion that LS is a disease of inflammatory driven fibrosis. The immune system is dynamic and undergoes changes during childhood, and we speculate on how the immune system in childhood could potentially contribute to some of the differences in LS between children and adults. Interestingly, the immune phenotype in pediatric LS resembles to some extent the healthy adult cellular phenotype, possibly supporting accelerated maturation of the immune system in LS. Localized scleroderma (LS) is the most common form of pediatric scleroderma, a disease whose histologic pathology involves inflammation and fibrosis, similar to that of systemic sclerosis (SSc), although the clinical phenotypes are markedly different. The mean age of pediatric LS disease onset is 6.4–8.7 years, with the disease more prevalent in Caucasians. Females are more commonly affected than males (2.3 4:1 ratio). LS can present in several different patterns (subtypes) depending on depth and distribution of lesions, including circumscribed morphea (plaque lesions), linear scleroderma of the trunk/limb or head (band-like lesion), generalized morphea (multiple plaque lesions), pansclerotic morphea, or a combination of two or more of these subtypes (mixed morphea). Twenty to 70% of juvenile LS patients have been reported to have extracutaneous involvement, with higher frequencies reported in prospective studies. The most common type of extracutaneous involvement is musculoskeletal, which includes joint, tendon, muscle, and bone issues. Joint and tendon issues include arthralgia, arthritis, joint contractures, some of which require corrective surgeries. Muscle involvement includes myalgia, myositis, and muscle atrophy. While treatment strategies effective for most patients have been identified, there is a major need for additional treatment options and strategies. Thirty percent of LS patients may fail to respond to initial standard immunosuppressive treatment, and 15–53% of patients can relapse following treatment.

Active disease can persist for decades. Failure to achieve remission and relapsing disease are both associated with poorer outcome. Identifying optimal treatment strategies for LS will require comparative effectiveness studies; the feasibility of this approach was demonstrated by a recent pilot study of three standardized methotrexate based regimens. Because treatment is focused on controlling inflammation, sensitive monitoring of disease activity is essential for conducting such trials. A recent study identified specific lesion features for tracking disease activity that are likely to improve the sensitivity and specificity of existing clinical measures. Future work may lead to development of a weighted clinical activity measure to further improve an ability to identify relative differences in treatment efficacies. The identification of biomarkers that facilitate monitoring activity level and/or help identify response to specific treatments will enable to work toward personalized medicine for these patients. Prof. Francesco Zulian introduced the terms Localised scleroderma severity index (LoSSI) and LoSCAT score for assessment of the disease and effect of treatment.