Supplementary table 1: Full list of questions which were ranked as ≥ 3.0 by 70% respondents (designated as priority translational dermatology research questions (PRQs)).

Inflammatory skin disease
Can aggressive treatment of atopic eczema during the first year of life with emollients/topical corticosteroids or immunomodulators shorten the duration of disease and prevent the atopic march?
Can biologics be stopped sooner for people with psoriasis, and if so what are the predictors for such people?
Can the development of childhood eczema be prevented or delayed by early identification and targeted intervention of high-risk families?
Can the pathogenesis of classical pyoderma gangrenosum be identified using a genomic and biomarker approach (e.g. investigating inflammasome)?
Can we develop a reliable test for identifying the culprit drug in drug allergy?
Can we identify novel systemic treatments for adult eczema?
Can we identify novel systemic therapies for lichen planus?
Can we modulate lichenoid inflammation and long-term sequelae, such as in lichen sclerosis and scarring?
Can we predict (from genotype and/or phenotype) which patients will respond to which second/third line treatments for eczema and which patients will not respond?
Can we stratify systemic/biological treatments on the basis of genotype and/or phenotype and predict treatment outcome in psoriasis?
Considering their central role in leukocyte recruitment; can chemokines be exploited as therapeutic targets is inflammatory skin disease?
Do biological therapies for major inflammatory skin diseases have long-term side effects?
Do insights from GWAS analysis of families with psoriasis or atopic eczema give rise to new treatments?
Do patients with atopic eczema really grow out of their disease and what is the burden of adult atopic eczema?
Does restoration of barrier function in atopic dermatitis prevent immune activation, disease persistence/progression, and/or the atopic march?
Does therapeutic increase in filaggrin expression associate with improvement in atopic

disease?
Does tight psoriasis control reduce mortality from co-morbidities?
How do we develop stratified medicine/personalised therapy in psoriasis and eczema (drugs and UV)?
How do we explain the morphology and distribution of [inflammatory] skin disease?
How do we improve the correlation between molecular and immunological endotype of inflammatory disease and phenotype?
How does the environment, the microbiome and epigenetics influence inflammatory skin disease?
How effective are systemic treatments in hidradenitis suppurativa?
What are the environmental factors responsible for the rise in atopic eczema prevalence?
What are the epigenetic regulatory processes underpinning different forms of skin inflammation and their response/resolution?
What are the immune molecular targets for treating atopic dermatitis?
What are the mechanisms involved in the pathogenesis of hidradenitis suppurativa?
What are the mechanisms of cutaneous lupus?
What are the mechanisms of environmental triggers in the development of psoriasis?
What are the molecular mechanisms by which filaggrin deficiency results in skin barrier impairment?
What are the most effective systemic treatments for lichen planus? (even placebo controlled studies may been needed)
What are the underpinning processes that determine scarring versus non-scarring in skin inflammatory disorders?
What genetic factors other than filaggrin are important in the pathogenesis of atopic dermatitis?
What is the optimal management of TEN (what locations, what interventions)?
What is the pathogenesis of rosacea – is there a role for targeted treatments?
What is the role of genomics and biomarker research in inflammatory skin disease?
What is the role of personalized medicine approaches?

What is the role of vitamin D in inflammatory skin disease? (mechanism of action, genetic variation in response etc)?
What mechanism underlies children growing out of eczema?
What mechanisms drive Koebnerisation in psoriasis?
What treatments for psoriasis will affect associated systemic excess disease risk (e.g. cardiovascular disease)?
Structural skin disorders / genodermatoses
Can novel targets for intervention be found across neglected ichthyoses and keratinisation disorders including palmoplantar keratodermas?
Can the understanding of genetic mechanisms be used to develop novel therapeutics for skin disease?
Can topical formulation deliver siRNA and small molecules to genetically impaired skin?
Can we build integrated clinical and research networks for rare and complex skin diseases?
Can we improve our mechanistic understanding for acute and chronic wound healing?
Does bone marrow transplantation for genetic skin diseases such as RDEB give long term persistence of graft cells in the skin and structural repair without immune response?
Does early effective skin care prevent or postpone leg ulceration in chronic venous insufficiency?
Does rapid genetic diagnosis of genodermatoses via next generation sequencing give any patient benefit?
How can we best correct the effects of genetic alterations which lead to disease (e.g. treatment of epidermolysis bullosa, correction of filaggrin deficiency)?
How do we improve gene therapy for genodermatoses?
How do we improve models of human skin (to include appendages and stem cells)?
Is cell therapy useful for severe genodermatoses and can we improve cellular therapies for genodermatoses in general?
Is there a single most efficient and safest method for delivery of siRNA gene therapy to the skin independent of the condition?
Is there a targeted treatment for Darier’s disease / Grover’s disease?

What angiogenic factors in leg ulcer healing can be exploited therapeutically?
What are the genetic bases of disorders of intermediate prevalence such as lichen planus, PLC, lichen striatus etc?
What are the genetic factors affecting efficacy of commonly used drugs such as methotrexate, azathioprine other than the obvious ones (i.e. whole genome approach)?
What are the mechanisms involved in impaired wound healing that can be used to improve treatment- diabetic ulcers, venous ulcers?
What insight do novel genes in the genodermatoses give regarding the molecular mechanisms of more common skin disease?
What is the link between structural breaches in the skin barrier and food allergies?
Skin cancer
BAD guidelines for follow up of patients with cutaneous SCC (cSCC) recommend medical observation for between 2-5 years. Is this necessary when complete excision of the presenting tumour has been undertaken?
Can the oncogenome of cutaneous SCC be used to predict response to novel targeted therapies?
Can we boost anti-cancer immunity to help treat most NMSCs?
Can we develop an effective topical therapeutic for BCC?
Can we identify biomarkers of melanoma recurrence / tumour load to assist in the early detection of metastases and selecting patients for interventions such as vemurafenib and ipilimumab?
Can we identify novel systemic treatments for SCC?
Can we identify stratified therapies for melanoma?
Does the treatment of precancerous skin lesions i.e. actinic keratoses lead to a reduction in the development of squamous cell carcinoma?
How best can skin cancer in organ transplant recipients be prevented?
How do cSCC and melanoma develop metastatic potential and does the tumour microenvironment have a critical role?

How do we develop early biomarkers of skin tumour metastasis?
How do we develop stratified medicine/personalised therapy for skin cancer?
How do we explain late recurrences of melanoma, in terms of seed and soil and the nature of the immune response to melanocytes and melanoma?
How do we improve our prediction of cutaneous lymphoma prognosis?
How will skin tumour dermatopathology be improved by DNA sequencing?
Is there sufficient molecular, cellular and preclinical evidence to support the use of the available targeted treatments against growth factor receptors (e.g. EGFR), PI3K-AKT, or MAPK signalling as a therapeutic strategy in cutaneous SCC?
What are the best prognostic biomarkers in cutaneous SCC in terms of predicting metastases?
What are the biomarkers and genetic factors involved in the transition between photo-aged skin, AKs and SCC?
What are the biomarkers of increased risk of skin cancer in immunosuppressed individuals?
What are the critical determinants of the tumour microenvironment that drive aggressive cutaneous SCC?
What are the genetic and biological factors in the pathogenesis of infiltrative BCC?
What are the genetic/molecular drivers for cutaneous SCC?
What are the genetics and biology of rare skin tumours such as DFSP?
What are the genotypic differences between patients with single versus multiple primary melanomas?
What are the molecular pathogenic mechanisms underlying field cancerisation and how can treatment of sun exposed dysplastic skin reduce the risk of SCC?
What are the optimal levels of UV-exposure for health and disease at an individual subject (rather than population) level to permit us to provide balanced/personalised advice regarding sun-exposure?
What are the predictive biomarkers of melanoma relapse?
What are the specific biomarkers associated with progress of dysplastic nevi to primary

melanoma to metastatic melanoma in the same individual?
What biomarkers or patient or tumour characteristics predict which actinic keratosis will progress to SCC?
What factors drive the survival of melanoma cells that are apparently dormant and that lead to metastases, in some cases, decades after excision of the primary lesion?
What is the best treatment for Merkel cell carcinoma?
What is the biological behaviour of different clinical pathological types of melanoma, with reference to metastatic potential and the timescale of evolution of melanomas?
What is the biology of in-situ melanomas?
What is the natural history of pre-malignant lesions and is treatment necessary?
What is the optimal staging pathway for people with high-risk melanoma?
What is the role of reduced skin immunity in the development of non-melanoma skin cancer in normal (i.e. non-organ transplant/non-immunocompromised) subjects?
With the advent of new targeted therapies for the treatment of metastatic melanoma, does regular CT surveillance lead to an improvement in overall survival?
Miscellaneous
Can cutaneous wart virus infections be prevented by vaccines and can they prevent skin carcinogenesis in beta PV infection?
Can we identify novel intradermal vaccination strategies for cancer and autoimmune diseases?
What are possible new biomarkers of inflammatory skin disease including lichen planus, palmoplantar pustulosis, atopic dermatitis, psoriasis?
What are the mechanisms of action of dermatological therapies (e.g. azathioprine, methotrexate, UVB, coal tar, PDT etc.) and can the mechanistic understanding be applied to the development of more specific & targetted therapies?
What are the mechanisms involved in the pathogenesis of vitiligo?
What are the roles of skin dendritic cells in immune surveillance and disease?
What is the pharmacology and neurophysiology of itch in man?

What underpins apparent protection of depigmented vitiligo skin against UVR associated non-melanoma skin cancers?

Appendix. Composition of UK TREND

UK TREND consists of: (i) Steering committee: Mike Ardern-Jones (Chairman of British Society for Investigative Dermatology), Marilyn Benham (Chief Executive Officer, British Association of Dermatologists), Sara Brown (Clinical Academic Representative), Eugene Healy (Deputy Chairman, UK TREND), Mike Jaega (Lay Representative), Irene Leigh (Academic Vice President, British Association of Dermatologists), Irwin McLean (Non-Clinical Academic Representative), Nick Reynolds (Chairman, UK TREND), Emma Rush (Lay Representative), Kave Shams (Research Trainee Representative), Shernaz Walton (NHS Clinical Dermatologist Representative) and (ii) Advisory committee: Chris Griffiths (Chairman), with other members of Advisory committee currently being appointed.