



PRINCIPLES OF SKIN MEASUREMENT SCIENCE & CLAIMS

OCTOBER 19 & 20, 2022



**VIRTUAL ATTENDANCE
AVAILABLE LIVE & ON PLAYBACK**

A TWO-DAY, INTENSIVE PROFESSIONAL EDUCATION PROGRAM

A course designed for graduate and post-graduate level cosmetic scientists who need to quickly build their knowledge of measurement techniques used in the development of new skin products and best practice in experimental design and claims substantiation. *



CONFERENCE AGENDA

EASTERN STANDARD TIME



WEDNESDAY, OCTOBER 19TH 2022

DAY 1

Anatomy + Physiology of the Skin

**Creating Good Cosmetics Claim Support:
Following the Rules**

**Creating Good Cosmetics Claim Support:
Designing the Right Claims Experiments**



KEYNOTE PRESENTATION

Spectroscopy + the Skin

Skin Moisture + TEWL Measurements

A Microscopy Technique for Your Skin Research Needs

Day 1 Quiz

Kahoot!

8:45a - 9:00a

INTRODUCTION TO THE COURSE - SETTING OUT THE LEARNING GOALS

Samuel Gourion-Arsiquaud + Paul Cornwell, [TRI Princeton](#)

Part 1. Introduction to Skin

9:00a - 10:00a

ANATOMY + PHYSIOLOGY OF SKIN

Dr Marcella Gabarra, TRI Princeton

30-Minute Comfort Break

Part 2. Claim Support & Experimental Design

10:30a - 11:30a

**CREATING GOOD SKIN COSMETICS CLAIM SUPPORT:
FOLLOWING THE RULES**

Paul Cornwell, TRI Princeton

11:30a - 12:30p

**CREATING GOOD SKIN COSMETICS CLAIM SUPPORT:
DESIGNING THE RIGHT CLAIM EXPERIMENTS**

Paul Cornwell, TRI Princeton

Lunchtime

Part 3. Skin Measurement Techniques

1:30p - 2:30p

*** KEYNOTE PRESENTATION - SPECTROSCOPY & THE SKIN**

Samuel Gourion-Arsiquaud, TRI Princeton

2:30p - 3:30p

SKIN MOISTURE + TEWL MEASUREMENTS

Paul Cornwell, TRI Princeton

30-Minute Comfort Break

4:00p - 4:30p

A MICROSCOPY TECHNIQUE FOR YOUR SKIN RESEARCH NEEDS

Dr Jessica C. Turner, TRI Princeton

4:30p - 5:00p

END OF DAY 1 QUIZ

SPEAKERS + ABSTRACTS

DAY ONE



9:00a - 10:00a

ANATOMY & PHYSIOLOGY OF THE SKIN

Dr Marcella Gabarra

Post-Doctoral Fellow — TRI Princeton, New Jersey, USA

This presentation is an introduction to the structure and function of the skin. The aim of the presentation is to provide a basic overview of the physical and chemical components of the skin, its various functions, the existing differences between the skin in the body sites, ethnicities and the aging process. Finally, it will be explored the interaction of the skin with the environment and how it affects the skin characteristics. The goal is to provide a foundation to understand the subsequent techniques outlined in the course.

After attending this presentation, you should be able to:

Identify the various layers and components of the skin

Understand the basic biological processes that contribute to the barrier function of the skin, and its other properties

Think about how topical formulations and products are impacting the skin and its components



Dr Marcella Gabarra

Post-Doctoral Fellow

Marcella qualified as a Pharmaceutical Biochemist in 2016, with a degree from University of São Paulo, Brazil. She earned her PhD in Pharmaceutical Sciences at the same university, focusing on technologies for cosmetic products. Marcella has always been interested in cosmetic science and has worked on the development and clinical evaluation of hair and skin care products since she was an undergraduate student, which resulted in published articles and oral and poster presentations at several congresses.

Marcella got to know TRI when she visited us on a summer placement in 2016 and now is working as a Post-Doctoral Fellow in the Skin and Biosubstrates team.

10:00a - 11:00a

CREATING GOOD COSMETICS CLAIM SUPPORT: FOLLOWING THE RULES

Dr Paul Cornwell

Director Business Development — TRI Princeton, New Jersey, USA

This presentation focusses on the laws in the EU, UK and US that must be complied with for claim support, and the processes to follow to create your claims matrix. The presentation finishes with a thought about benefit vs risk. It is in the nature of ambitious cosmetics companies to make the strongest claims possible, but stretching the rules comes with increased business risks.

After attending this presentation, you should be able to:

Classify your products as either cosmetics or drugs

Define what is a claim

Understand the legal restrictions on claims in EU, UK and US

Build a claims matrix, including your claim types and the level of support each claim needs

Understand the legal and ethical debates around free-from claims, natural claims, sustainability claims and no-animal testing claims

Be able to balance business risks with the costs of claims testing



Dr Paul Cornwell

Director Business Development

Paul is based in the UK. Paul's technical expertise is focussed on product evaluation, instrumental measurement techniques and on formulation design, particularly in cosmetic skin and hair care products. He has over 25 years of industrial experience in claim support testing, innovation and product development at Unilever and PZ Cossons.

11:30a - 12:30p

CREATING GOOD COSMETICS CLAIM SUPPORT: DESIGNING THE RIGHT CLAIMS EXPERIMENTS

Dr Paul Cornwell

Director Business Development — TRI Princeton, New Jersey, USA

Part 2 of two presentations about creating good cosmetics claim support. This presentation provides guidance on how to select the right type of test to fit your claim, and how to design your experiments.

Product testing has many potential pitfalls. Pitfalls that quietly distort our view of data we have collected, often without us even realising. In this presentation these naughty things are called demons, as they are there to confuse and frustrate us, and to cause chaos. Methods are described here to keep these demons at bay and to design more robust experiments.

After attending this presentation, you should be able to:

Understand the risks associated with false positives and negatives, panellist bias and personal bias

Know how to translate claims statements into technical measurements

Select your type of claims test from (1) sensory tests, (2) clinical tests, (3) ex vivo tests and (4) in vitro cell culture tests

Complete your claims matrix and define all the tests required

Design a test with a clear objective • Design a test with a robust study outline • Design a test with a fully validated protocol

Get the operation details right for your testing • Define your success criteria



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12:30p - 1:30p



KEYNOTE PRESENTATION SPECTROSCOPY AND THE SKIN

Dr Samuel Gourion-Arsiquaud

Director, Skin and Biosubstrates — TRI Princeton, New Jersey, USA

Vibrational spectroscopy is a versatile method, often underestimated by cosmetic companies. Indeed, this method can be used at different levels in a business from advanced research to marketing, from ex-vivo experiments to clinical evaluations. In this presentation we will highlight its versatility by describing different applications: Evaluation of the skin barrier and how this barrier can be impacted by external stimuli (e.g. sunlight, ozone, skin penetration enhancers), evaluation of active penetration in human skin, generation of 3D face maps to visualize sunscreen deposition on the skin during clinical tests and investigation of the performance of the UV filters overtime.

After attending this presentation, you should be able to:

Identify how the spectroscopic methods can be used to support some of your business needs

(advance research, product evaluation, support claims and marketing)

Understand how these methods can be used to evaluate the skin barrier function

Understand how these methods can be used to visualize the active penetration and/or the active deposition

Know how these methods could be used during clinical evaluation



Dr Samuel Gourion-Arsiquaud

Director, Skin and Biosubstrates

Dr. Gourion-Arsiquaud is the molecular and structural analysis expert at TRI. He uses various spectroscopic and microscopic techniques for the characterization of biomaterials and the study of biological modifications associated with specific conditions like treatment, drug use, disease, age or environmental factors.

2:30p - 3:30p

SKIN MOISTURE + TEWL MEASUREMENTS

Dr Paul Cornwell

Director Business Development — TRI Princeton, New Jersey, USA

The skin barrier is, on average, less than 1 mm thick, not much thicker than a sheet of paper, yet it is able to hold all the moisture inside our bodies whilst we walk around in the air. This presentation will describe how the skin regulates water loss from the body, and why having a good moisture balance in the skin is important for skin health.

The presentation will then explain how skin moisture levels can be measured in clinical tests, and what the pros and cons are for each approach.

After attending this presentation, you should be able to:

Understand how water levels are controlled in the stratum corneum and viable epidermis

Describe the causes, symptoms, and treatments for dry skin (xerosis)

Identify endogenous, exogenous, and environmental factors affecting skin moisture experiments

Select the appropriate experimental test designs for your studies

Critically evaluate the various moisture testing methods available, including electromagnetic tests and spectroscopic tests

Critically evaluate the various water diffusion methods available,

including open chamber and closed chamber transepidermal water loss measurements



Dr Paul Cornwell

Director Business Development

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4:00p - 4:30p

A MICROSCOPY TECHNIQUE FOR YOUR SKIN RESEARCH NEEDS

Dr Jessica C. Turner

Post-Doctoral Fellow — TRI Princeton, New Jersey, USA

Vibrational spectroscopy is a versatile method, often underestimated by cosmetic companies. Indeed, this method can be used at different levels in a business from advanced research to marketing, from ex-vivo experiments to clinical evaluations. In this presentation we will highlight its versatility by describing different applications: Evaluation of the skin barrier and how this barrier can be impacted by external stimuli (e.g. sunlight, ozone, skin penetration enhancers), evaluation of active penetration in human skin, generation of 3D face maps to visualize sunscreen deposition on the skin during clinical tests and investigation of the performance of the UV filters overtime.

After attending this presentation, you should be able to:

Understand the different types of microscopies that can be applied to study skin, its components and its properties

Understand the benefits and limitations of microscopic imaging of the skin

Adequate selection of microscopic technique to support your research and screening studies

Evaluate how microscopic assessment can be used in conjunction with other methods of assessment of the skin



Dr Jessica C. Turner

Post-Doctoral Fellow

Jessica earned her Ph.D. in Biomedical Engineering from the New Jersey Institute of Technology in May 2021. She was awarded a NASA Space Technology Research Fellowship to evaluate human mesenchymal stem cells on tissue engineering constructs in altered gravity environments during her doctoral studies.

The focus of her research has been bone tissue, biomaterials, in vitro cell cultures and cell response to altered gravity environments. Jessica joined the Skin & BioSubstrates team at TRI Princeton as a post-doctoral fellow in June 2022. Here at TRI, she is applying her skill set to contribute to the field of skin and hair research and to the development of new applications.

THURSDAY, OCTOBER 20TH 2022

DAY 2



KEYNOTE PRESENTATION

Skin Microbiome Measurement



KEYNOTE PRESENTATION

**Sensory System in the Skin & New In-Vitro Method
for Its Measurement**

Skin UV Protection Studies



KEYNOTE PRESENTATION

Imaging Technologies and Image Analysis of Skin

Skin Irritation Testing

Skin Penetration Studies

Day 2 Quiz + Awards

Kahoot!

8:45a - 9:00a

INTRODUCTION TO DAY 2

Samuel Gourion-Arsiquaud + Paul Cornwell, TRI Princeton

9:00a - 10:00a

***KEYNOTE PRESENTATION – SKIN MICROBIOME MEASUREMENT**

Dr Georgios Stamatias, Johnson & Johnson Santé Beauté, France

10:00a - 11:00a

***KEYNOTE PRESENTATION – SENSORY SYSTEM IN THE SKIN & NEW IN-VITRO METHOD FOR ITS MEASUREMENT**

Elodie Gras-lavigne, Neuron Experts, France

30-Minute Comfort Break

11:30a - 12:30p

SKIN UV PROTECTION STUDIES

Dr Marcella Garbarra, TRI Princeton

Lunchtime

1:30p - 2:30p

***KEYNOTE PRESENTATION - IMAGING TECHNOLOGIES AND IMAGE ANALYSIS OF SKIN**

Mathieu Jomier, Newtone Inc, NJ

2:30p - 3:30p

SKIN IRRITATION TESTING

Paul Cornwell, TRI Princeton

30-Minute Comfort Break

4:00p - 5:00p

SKIN PENETRATION STUDIES

Paul Cornwell, TRI Princeton

4:30p - 5:00p

END OF DAY 2 QUIZ & AWARDS

SPEAKERS & ABSTRACTS

DAY TWO



9:00a - 10:00a

*** KEYNOTE PRESENTATION**
SKIN MICROBIOME MEASUREMENTS

Dr Georgios Stamatias

Johnson & Johnson Santé Beauté, France

There is a growing importance of the microbiota on the skin surface and the role they play in skin health and disease. An overview of the current understanding and research areas related to the skin microbiome and the host-microbiome interactions will be presented. New results of combing different Omics approaches will also be discussed. These topics will detail various assays and tests to generate a biotic claim through modulating the skin or scalp microbiome.

After attending this presentation, you should be able to:

Understand the microbiome function on the skin

Understand the concept of microbiome and metagenome analysis

Comprehend how cosmetics can influence and modulate the skin microbiome

Understand the relationship of microbiome and skin barrier

Understand the assays and tests used to evaluate the microbiome and cosmetic products claims



Dr Georgios Stamatias

Johnson & Johnson Santé Beauté, France

Georgios Stamatias, PhD is a Biomedical Engineer with more than 20 years of international experience in Health Care industry.

He currently works as Research Associate Director and Fellow in the Translational Science group at Johnson & Johnson supporting Global Essential Health. He is passionate about discovering new scientific insights focusing on understanding of skin physiology and the effects of topical skin care products.

He is leading a team of scientists charged with developing computational, in vitro and clinical models and methods supporting the scientific credentials of J&J's skincare products. This research has led to an important number of global scientific "firsts" for J&J including shifting the paradigm of infant skin maturation and understanding the mechanisms of cutaneous adverse reactions during oncology therapy.

Dr. Stamatias holds a PhD in Chemical/Biomedical Engineering and has co-authored more than 90 peer-review publications and 14 patents.

10:00a - 11:00a

 **KEYNOTE PRESENTATION**
CELL CULTURE AND LSE: EMERGING METHODS

Elodie Gras Lavigne

Chief Operating Officer & Head of Neurodermatology — Neuron Experts, France

There is a growing interest regarding the sensory system on the skin and for the role it plays in the improvement of skin health, people wellbeing and disease recovery. An overview of organisation of the sensory system in the skin and of its role in different skin mechanism (anti-ageing, wound healing...) will be highlighted. These sensory neurons/skin cells interactions making neurons a potential target for cosmetics or dermatological products, in-vitro methods of objective evaluation/measurement will be presented.

After attending this presentation, you should be able to:

Understand the sensory system role and organisation on the skin

Understand the crosstalk established between skin cells and sensory neurons

Comprehend how cosmetics by acting on neurons can influence and modulate the skin physiology and people wellbeing

Understand the assays and tests used to evaluate the cosmetic products and support cosmetic claims



Elodie Gras Lavigne

Chief Operating Officer & Head of Neurodermatology, Neuron Experts, France

Paul is based in the UK. Paul's technical expertise is focussed on product evaluation, instrumental measurement techniques and on formulation design, particularly in cosmetic skin and hair care products. He has over 25 years of industrial experience in claim support testing, innovation and product development at Unilever and PZ Cussons.

11:30a - 12:30p

SKIN UV PROTECTION

Dr Marcella Gabarra

Post-Doctoral Fellow — TRI Princeton, New Jersey, USA

This presentation will describe the effects of UV light on the skin and how the skin photoprotection prevents skin damage. Concerns about aspects of sunscreen safety have increased recently. This presentation will, therefore, explore techniques used to improve sunscreen safety and stability. Finally, this presentation will talk about the methods used to evaluate the sunscreen performance and the protocols to evaluate their efficacy and safety, in terms of skin penetration.

After attending this presentation, you should be able to:

Understand the benefits and the deleterious effects of skin exposure to UV light

Comprehend the nomenclature related to skin photoprotection

Understand the differences in legal aspects of sunscreens in EU, US and Brazil

Understand the differences between types of UV filters

Understand the approaches regarding the improvement of safety and stability of UV filters

Comprehend the methodology used to investigate the efficacy, safety, and stability of sunscreen formulations



Dr Marcella Gabarra

Post-Doctoral Fellow

Marcella qualified as a Pharmaceutical Biochemist in 2016, with a degree from University of São Paulo, Brazil. She earned her PhD in Pharmaceutical Sciences at the same university, focusing on technologies for cosmetic products. Marcella has always been interested in cosmetic science and has worked on the development and clinical evaluation of hair and skin care products since she was an undergraduate student, which resulted in published articles and oral and poster presentations at several congresses.

Marcella got to know TRI when she visited us on a summer placement in 2016 and now is working as a Post-Doctoral Fellow in the Skin and Biosubstrates team.

1:30p - 2:30p



KEYNOTE PRESENTATION

IMAGING TECHNOLOGIES + IMAGE ANALYSIS OF SKIN

Matthieu Jomier

Chief Operations Officer — Newtone Inc., Princeton, New Jersey, USA

Non-invasive skin imaging techniques have become increasingly accessible to evaluate the efficacy of a wide range of cosmetic and personal care products. Whether for 2D or 3D analysis, innovative high sensitivity acquisition systems combined with specific image processing algorithms can be easily used for reliable and objective evaluation in clinical trials. Other imaging techniques, such as full-face hyperspectral imaging, can still play a very important role in quantitative analysis of skin components and thus bring new methods for claims substantiation.

After attending this presentation, you should be able to:

Get an overview of the different skin analysis methods that can be used in clinical studies

Understand the benefits of the different skin acquisition systems for claims substantiation

Identify the most appropriate instrument and related protocol for skin analysis depending on your claims

Evaluate the potential of skin imaging for marketing purposes



Matthieu Jomier

Chief Operations Officer — Newtone Inc., Princeton, New Jersey, USA

Matthieu Jomier is currently managing director of Newtone Inc. (Princeton, New-Jersey) where he focuses on North and South America business development and support.

Matthieu received his B.S. and M.S in Electrical Engineering and Computer Science in 2002 from the ESCPE-Lyon (France) where he specialized in image processing, data modeling and computer vision.

He worked on a variety of projects in the areas of medical image processing, hyperspectral imaging and clinical image analysis. Matthieu developed in-vivo and in-vitro solutions to assess product efficacy in correlation with consumer perception.

Prior to joining Newtone, Matthieu was a research associate in the Neuro Image Analysis Laboratory at the University of North Carolina at Chapel Hill and worked for the Molecular and Ionic Spectroscopy research center in Lyon, France.

2:30p - 3:30p

SKIN IRRITATION TESTING

Dr Paul Cornwell

Director Business Development — TRI Princeton, New Jersey, USA

Studies have shown that over 50% of women have self-perceived sensitive skin. Skin that is either mildly sensitive to cosmetic and cleansing products, moderately sensitive and prone to mild eczema and psoriasis or severally sensitive with persistent skin conditions. There is a strong demand for reduced skin irritation from cleansing and care products, which is being met with a new generation of sensitive skin products and brands. In this presentation the origins of sensitive skin will be described, and the factors that affect it also defined.

This presentation then describes the different tests performed to test for the prevention of irritant contact dermatitis, allergic contact dermatitis, pain and itch and sensitive skin. Specific technologies and test protocols for testing treatments for sensitive skin are also discussed.

After attending this presentation, you should be able to:

Understand the role of the immune system and nervous system in creating the classic inflammatory response

Describe the ways in which cosmetic products can cause skin irritation either directly, by stimulating the immune and nervous systems, or indirectly, by affecting skin barrier function

Understand the symptoms, causes and dermatological tests for irritant contact dermatitis, contact dermatitis, pain and itch, and sensitive skin

Describe the factors that can affect skin irritation, including skin problems, barrier disruption, site differences and age

Develop technologies for reducing skin irritation and test protocols for sensitive skin treatments



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Director Business Development

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4:00p - 5:00p

SKIN PENETRATION STUDIES

Dr Paul Cornwell

Director Business Development — TRI Princeton, New Jersey, USA

The effectiveness of any topical ingredient, whether cosmetic or pharmaceutical, is always determined by both the intrinsic activity, or effectiveness, of the active itself and its delivery to its site of action. So, in other words, without skin penetration and delivery you can't have an effective topical treatment. This presentation explains how chemicals penetrate the skin and the factors that can affect skin delivery.

The presentation then critically evaluates the different types of skin penetration test protocols that can be used. Course attendees should leave knowing which type of test is best suited to which particular type of study brief.

After attending this presentation, you should be able to:

Understand the main macro-routes for penetration through the skin

Optimise skin delivery using the correct selection of actives, skin penetration enhancers and controlling vehicle effects, and by understanding skin metabolism

Select the most appropriate membranes, diffusion cells, protocols for in vitro diffusion tests

Understand the potential of tape-stripping tests for measuring delivery in vivo



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THANK YOU FOR JOINING US

**Please Forward Any Feedback on the Course to
events@triprinceton.org**

