

Clinical Performance Enhancing Program 5-3 (CPEP 5-3)

**The basic of clinical trial:  
Non-invasive measurement of skin  
Mechanical property of skin:  
Elasticity, wrinkle, etc**

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1. Mechanical properties
  - A. To determine a material's behavior when subjected to mechanical stresses / load or forces
  - B. Strength, ductility, elasticity, hardness, fatigue, creep, toughness, fracture
2. Static stress: constant mechanical forces.
  - i. Tensile - tend to stretch the material
  - ii. Compressive - tend to squeeze material
  - iii. Shear - tend to slide material
3. Elastic deformation: temporary deformation
4. Anelastic deformation: time dependent recoverable deformation under load
5. Human skin: a non-homogeneous, anisotropic, non-linear viscoelastic material which is subjected to a prestress in vivo
  - A. Non-linear stress-strain relationship: non-uniformity of elastin and collagen fibers
  - B. Anisotropy: meshwork of collagen fibers, a preferential direction of extensibility which is characterized by Langer's lines
  - C. Viscoelasticity: viscous and elastic characteristics when undergoing deformation
  - D. Prestress: under normal conditions, a state of pre-tension which varies with age, body site and direction
6. Mechanical testing methods of skin
  - A. Tensile: ex vivo under controlled condition, uniaxial and biaxial testing modes
  - B. Suction: skin elevation caused by application of a partial vacuum  
Cutometer® & CutiScan CS 100 (C+K electronic GmbH, Germany)
  - C. Torsion: Dermal Torgue Meter (Dia-Stron Limited, UK)
  - D. Indentometry: Firmness and resilience, Ballistometer (Dia-Stron Limited, UK)
7. Measurement of wrinkles
  - A. Replical method: Skin-Visiometer® & Visioline® 100 (C+K electronic GmbH, Germany)
  - B. Fringe projection method: PRIMOS (CANFIELD scientific, Inc., USA)

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**■ CURRICULUM VITAE ■****백지훈(Ji Hwoon Baek, M.D., Ph.D.)**

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**Education:**

- 2006-2010 Ph.D. in Immunology, Yonsei University, Seoul, Korea
- 2001-2002 M.S. in Pharmacology, Kyung Hee University, Seoul, Korea
- 1998-2004 B.S. in Biology, INHA University, Incheon, Korea

**Training and Fellowship Appointments:**

- 2016-2017 Head of R&D and regulatory affairs, DERMAPRO Ltd., Seoul, Korea
- 2006-2015 Project Leader, Efficacy evaluation team, DERMAPRO Ltd., Seoul, Korea
- 2004-2006 Senior Researcher, Skin Research Center, AEKYUNG CO., LTD, Seoul, Korea
- 2001-2003 Researcher, Skin Research Center, AEKYUNG CO., LTD, Seoul, Korea

**Faculty Appointment:**

- 2013-2015 Lecturer, Department of Cosmetology, KunKuk University

**Memberships:**

- 2001-2017 The Society of Cosmetic Scientists of Korea
- 2001-2017 Korean Society of Skin Barrier Research
- 2001-2017 Korean Society of Skin Functional Foods