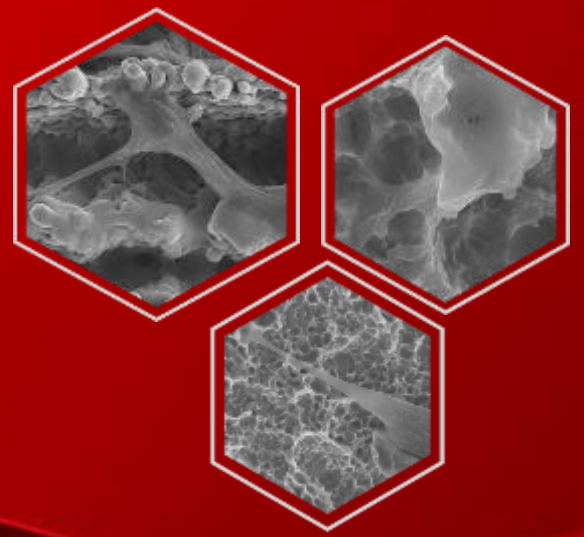
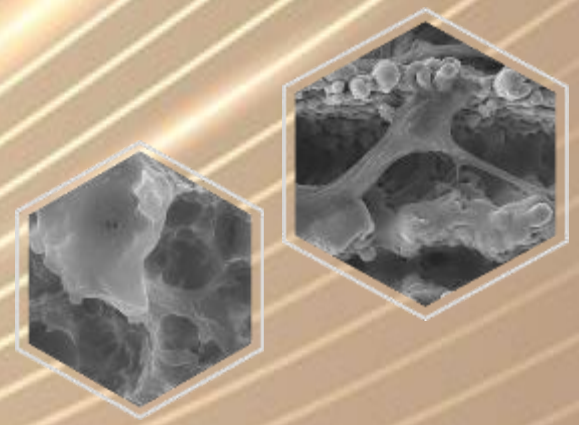
Biomate SWISS



CE 0123 TÜV FDA K142174 حلال Medical Device AUTHORITY MALAYSIA TFDA

Biomate SWISS



PDL®

Precision Dimension Laser

Laser Surface Treatment

Biomate SWISS

PDL®

Precision Dimension Laser

Laser Surface Treatment

7 Features

Inhibition Biofilm Formation
Accelerates Early Bone Healing
Osteoblast Cells Adhesion
Angiogenesis
The Initial Calcification
Exchange of Nutrients
Stabilizing Bone Structure

SUITABLE 6 SURGERIES

- One Day Implant surgery -Immediate Replacement and Immediate Loading Surgery
- Narrow Defect Bone –GBR Implant Surgery
- Implant Surgery for low dentistry (Aged people) and light inflation bone
- Minimally Invasive Surgery
- Full Mouth Reconstruction Surgery- All-On-Four Surgery
- Digital Implant Surgery-CAD/CAM and Surgery Guide

Biomate SWISS

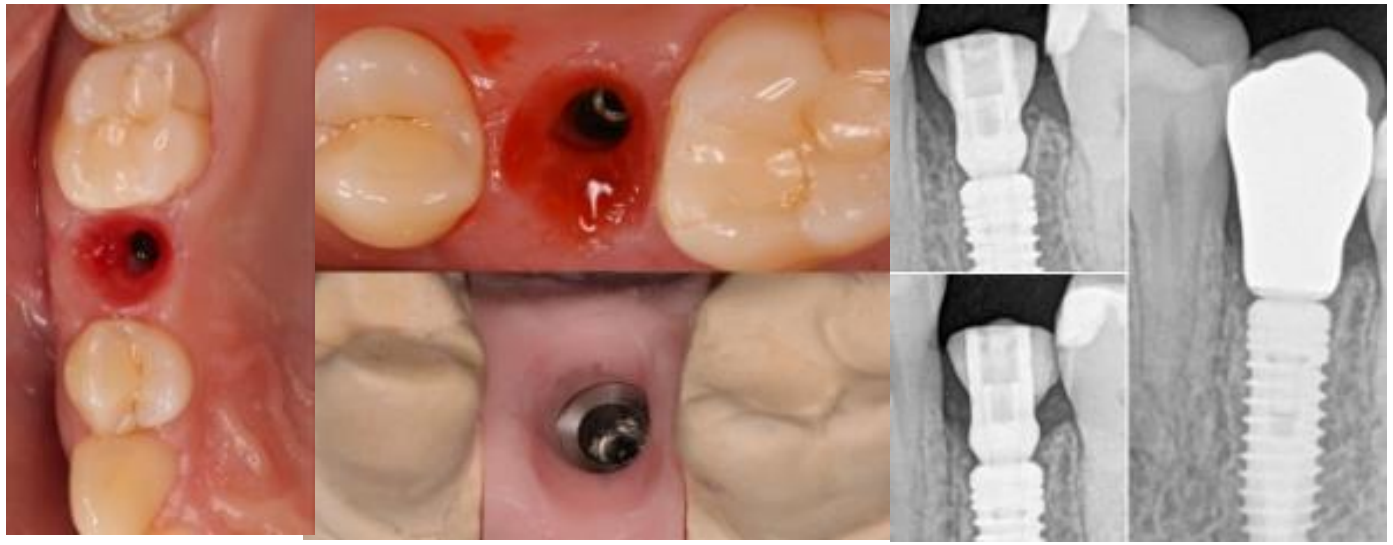
The World's First Implant

Approved For

The Cleanest Surface

With 3D-nanostructure & Microchannel

Collaboration with globally renowned dental implant expert, Prof. Dr. Tomas.

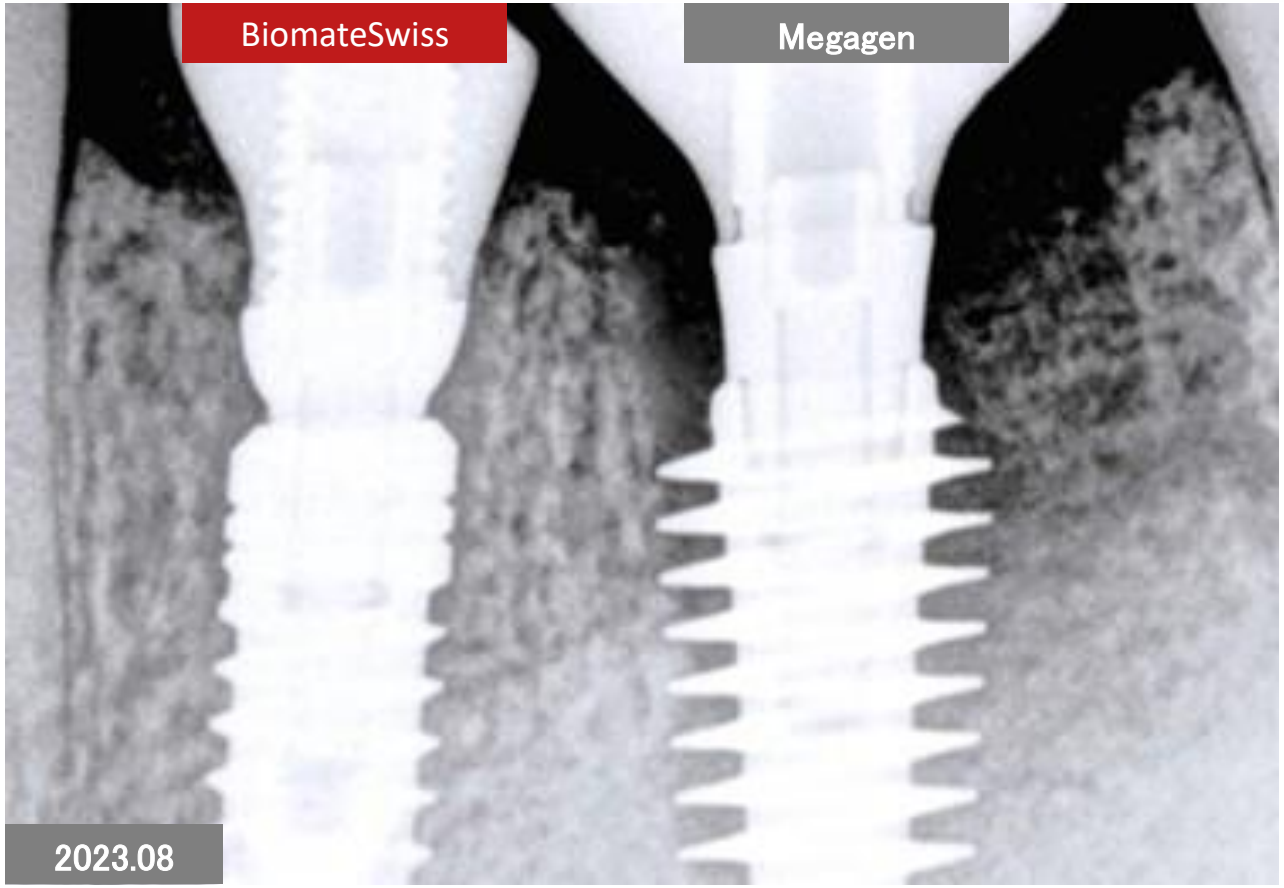


Domestic and foreign dental implant masters work together

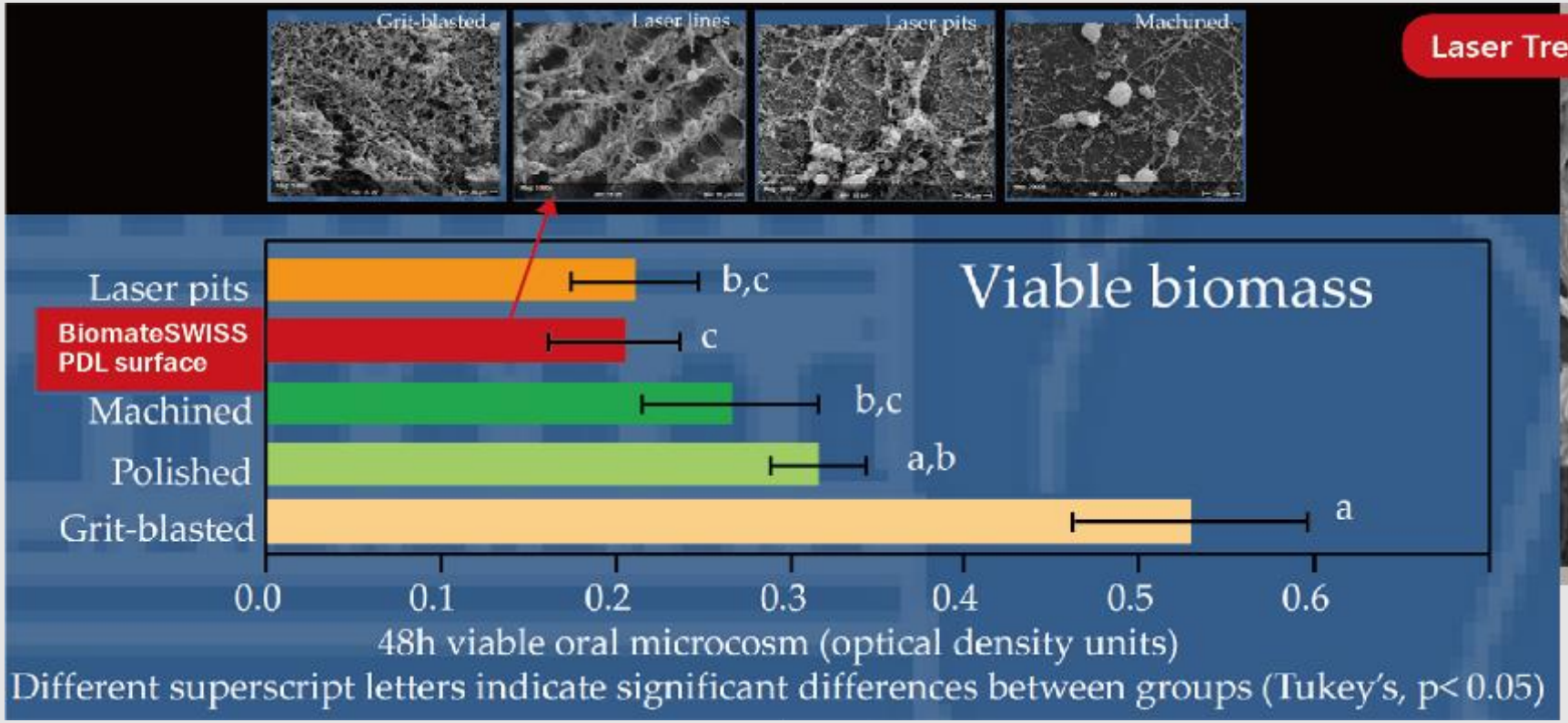
Foreign Prof. Dr. Tomas and Dr. Chen Juncheng conduct international clinical trials. Using the same implants, the same surgical procedures, and patients from different countries, we can obtain valuable international clinical data, such as bone quality differences between Europe and other countries, surgical procedures, treatment plans, dental implant aesthetics, etc., and conduct international patient Clinical data comparison and international academic publication, etc.

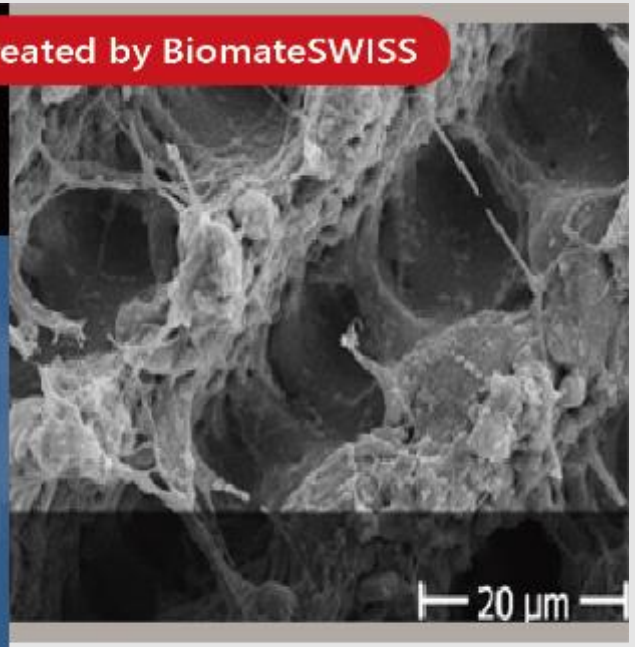
Biomate SWISS

Prof. Dr. Tomas Case:
BiomateSwiss VS Megagen

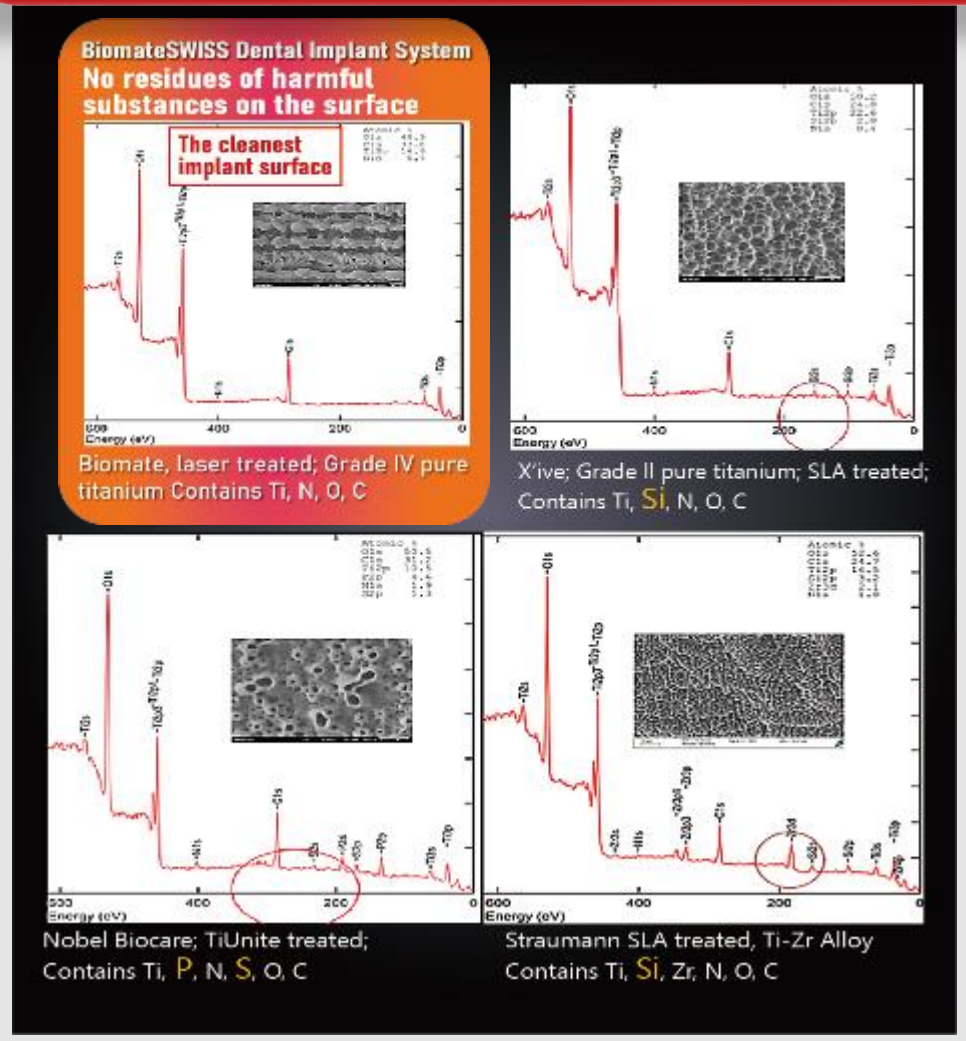


Research from the University of Milan, Italy
Atibacterial Effects on Implant Surface





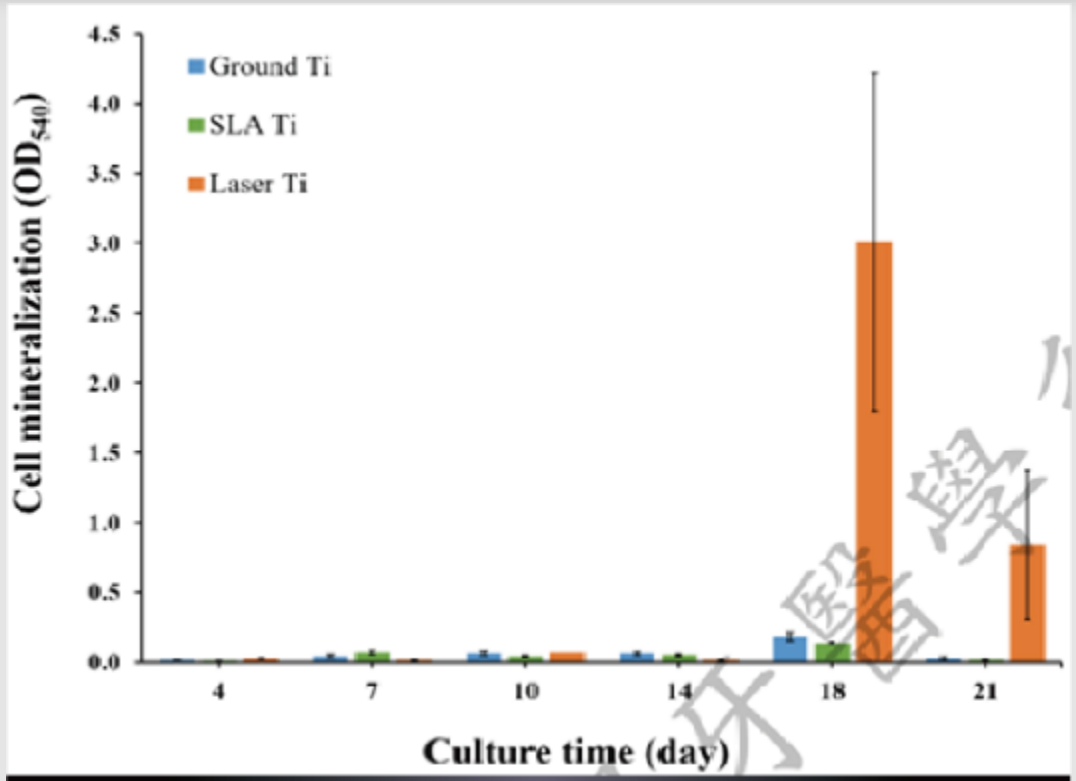
National Chung Hsing University Experiment BiomateSWISS Implants Ultra-Cleanliness



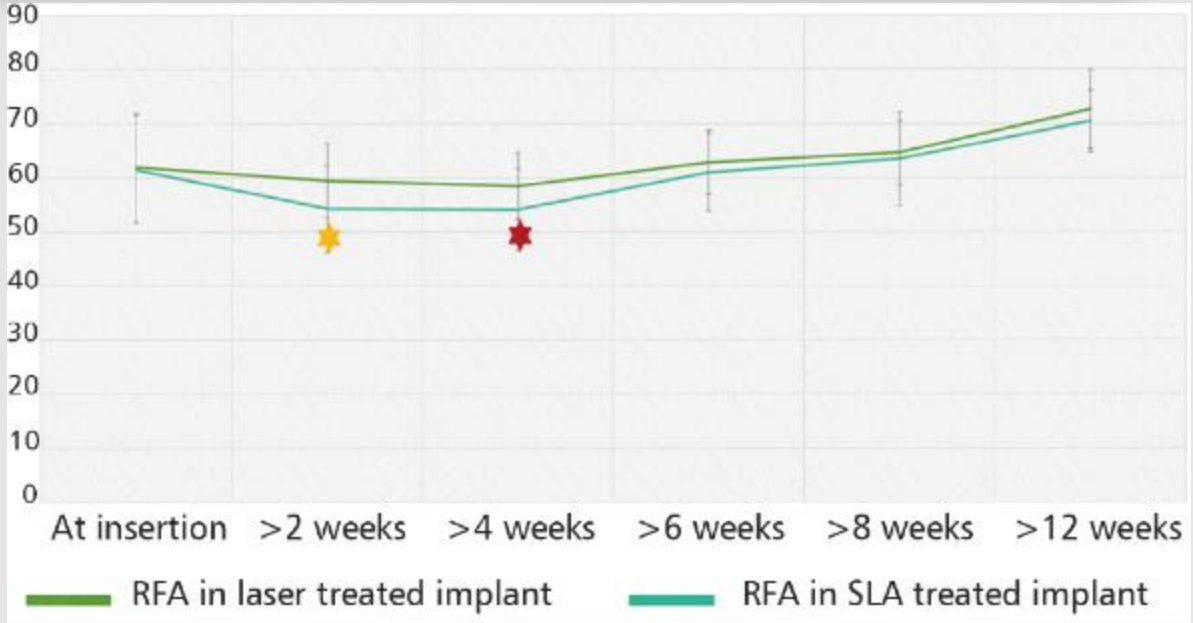
This technique can form unique 3D pores with micro-nano & microchannel texture on implant surface. The microchannel can induce the precursor of osteoblast directional moving onto the implant surface , and the micro-nano 3D pore improves the efficiency of osteoblast adherence, proliferation , differentiation , and finally , bone formation.

Biomate:	Ti.N.O.C
Xive:	Ti.Si.N.O.C
Nobel Biocare:	Ti.P.N.S.O.C
Straumann:	Ti.Si.Zr.N.O.C

Implants with the Fastest Bone Healing Effect (Medical research by Professor Dr. Amr Hosny Elkhadem, University of Cairo, Egypt)

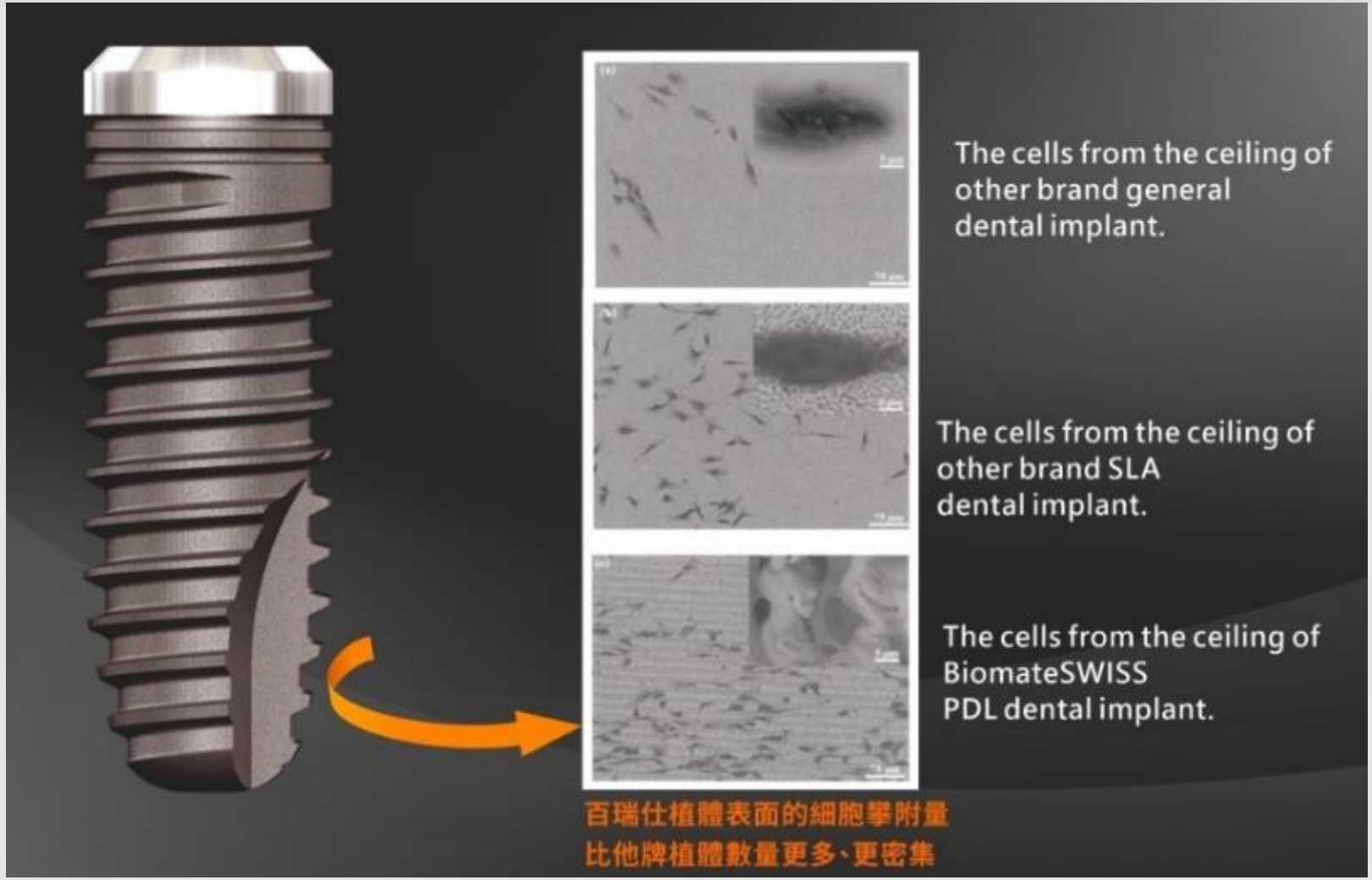


The Fastest Initial Calcification



The Faster Bone Healing :
It is an implant very suitable for Immediate replacement & loading

Image below: Under the microscope, the implant with PDL® laser surface treatment patent exhibits the highest number of cell growth



Amazing Osseointegration Effect

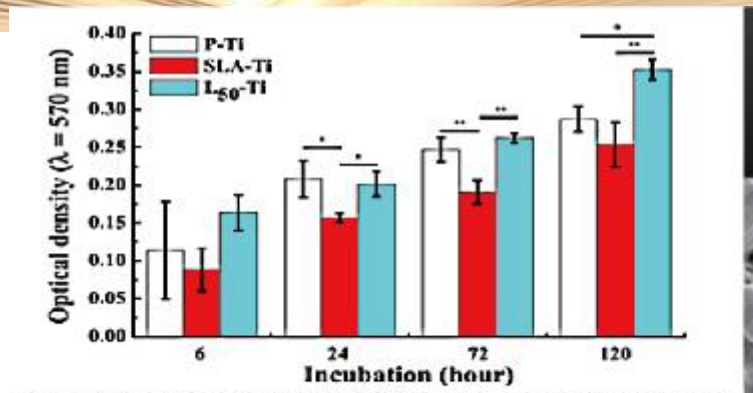
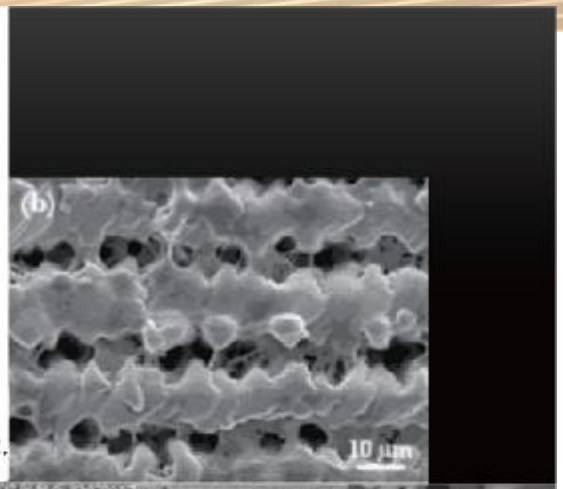
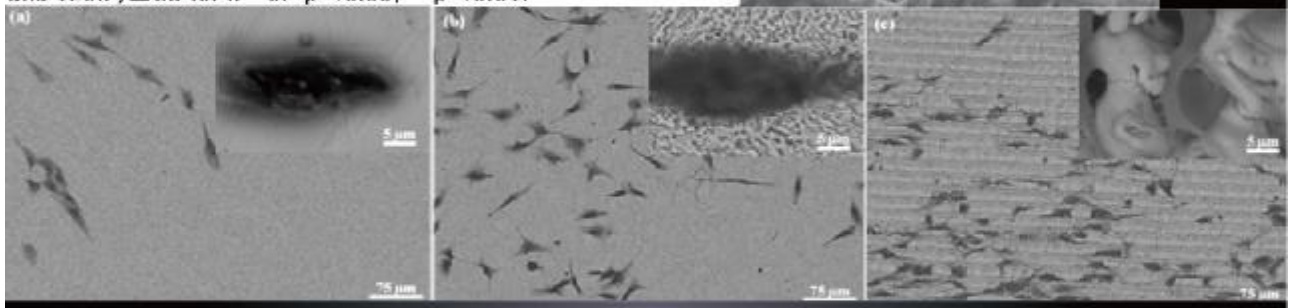


Fig. 3. Attachment and proliferation of MG-63 osteoblast-like cells on differently treated surfaces. Error bars represent the mean of optical density of cell attachment(at 6 h) and proliferation(at 24,72, and 120h) ± SD for n = 6.*p < 0.05,**p < 0.01.





MG-63 osteoblast-like cell morphologies after 5 days of culture on(a) polished titanium (P-Ti), (b)sandblasted and acid-etched (SLA)-Ti, and (c)laser-treated(L50)-Ti surfaces. Inserted images reveal morphologies at a higher magnification.

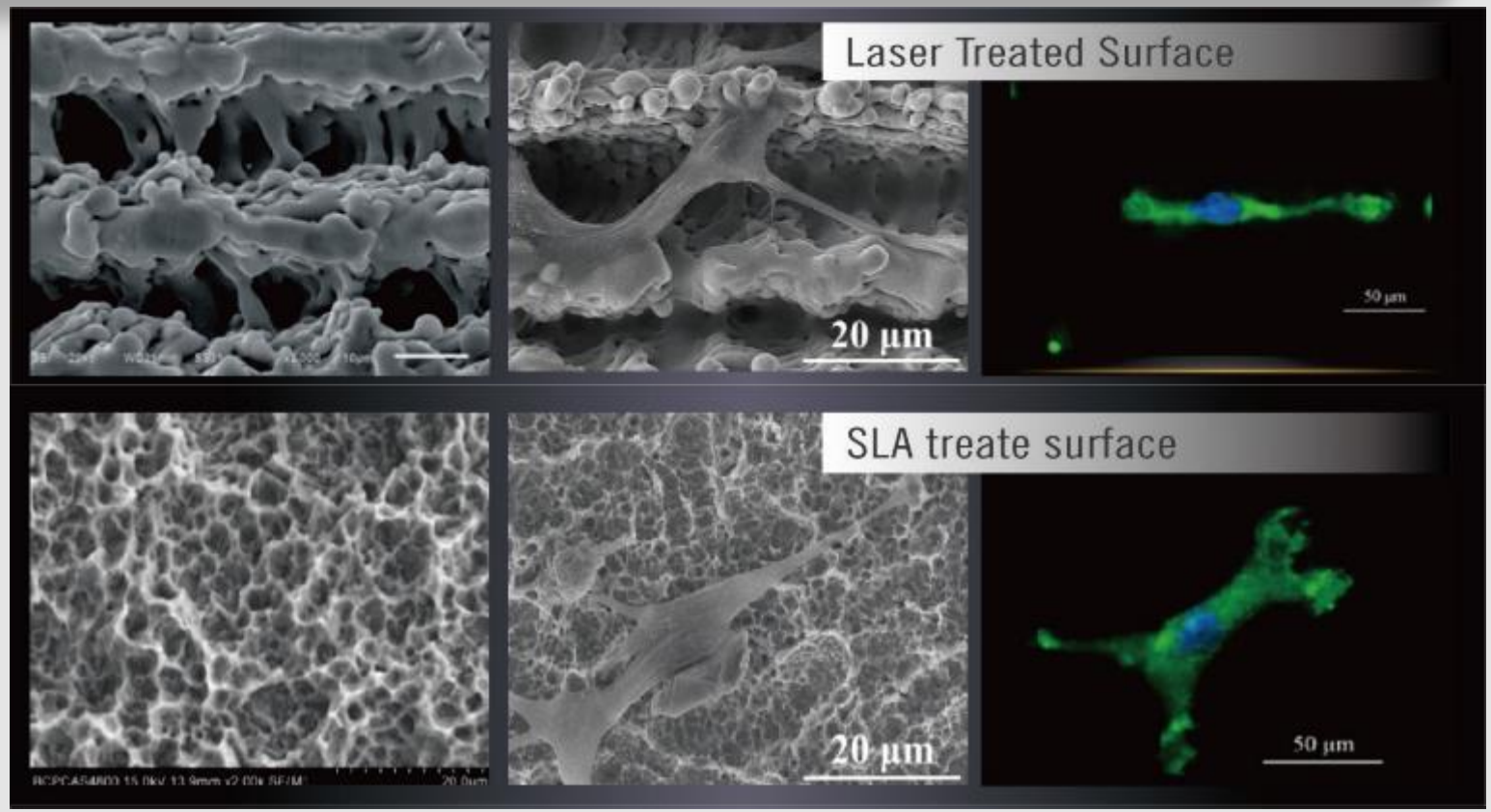
Comparison among Machined, SLA and Laser surface treatment

attachment and proliferation of MG-63 osteoblast-like cells on differently treated surfaces. Error bars represent the mean of optical density of cell attachment(at 6 h) and proliferation(at 24, 72,and 120h)+-SD for n = 6.*p < 0.05,**p < 0.01.

The structure of the surface is enhancing Osseointegration

The micro-nano structure surface on multiple micro channels can help the absorption of protein and the adhesion of cell.

Osteoblasts Guiding Growth Directionality (National Yang-Ming Chiao Tung University)



Biomate laser surface treatment is a type of hot working technique, which applies high energy density laser (up to 1700 ° C), focusing on the metal surface **to fuse and evaporate** the surface with the heat.

10 Years Case report

2013/03/19

2013/04/02

2014.07.15

2018.05.10

2023/11/15

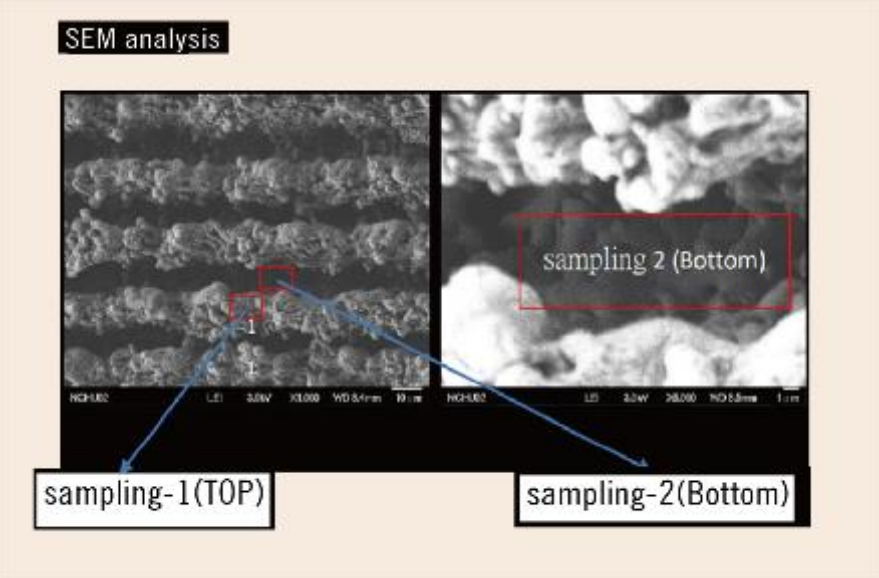
2013/04/02

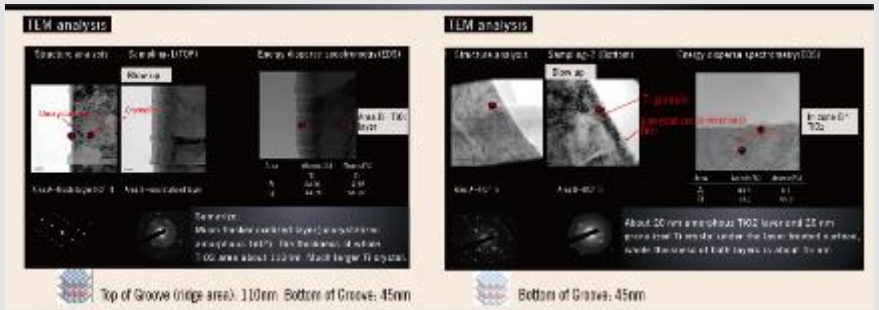
2014.07.15

2023/11/15

Biomate SWISS

BiomateSWISS: Enhancing Oxide Thickness to Increase Hemocompatibility (National Chung Hsing University)





Oxide layer thickness：

top of trench(uplift area):110nm

bottom of trench :45nm

Laser Creates a Thicker Oxide Layer

Laser produces an oxide layer called TiO2, which is formed on the surface of the pure titanium when contacting oxygen. The TiO2 layer with anatase texture can effectively increase the adhesion of protein and decreases the proliferation of fiber tissue. Meanwhile, the TiO2 layer can help to improve the connection between the bone and the implanted material and help to improve the proliferation of hydroxyapatite in SBF.

Clinical research at Cairo University in Egypt confirms that bone loss with BiomateSWISS laser surface-treated implants is significantly lower than that observed with SLA surface implants.

10.21608/adjc.2023.207308.1295 Advanced Dental Journal
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Original Article

Effect of Different Implant Surface Treatments on Bony Changes around Mandibular Implants for Completely Edentulous Patients: A Split-Mouth Comparative Study

Marwan Abdelsalam[1], Amal Fathy Kaddah[1], Samer Mostafa Ali[2], Doaa Alkady[1]
[1]Prosthodontics Department, Faculty of Dentistry, Cairo University, Egypt
[2]Prosthodontics Department, Faculty of Dentistry, MSA University, Egypt
Email: dr.marwanmohamed@gmail.com

Submitted: 25-4-2023
Accepted: 7-5-2023

(Table 1) Comparison of bone loss between groups at different observation times

	6 months after overdenture insertion (T6)	9 months after overdenture insertion (T9)	12 months after overdenture insertion (T12)
SLA (X±SD)	.580±.243	.954±.192	1.031±.161
Laser (X±SD)	.096±.047	.127±.029	.183±.113
Independent samples t-test (p value)	<.001*	<.001*	<.001*

P value is significant at 5% level

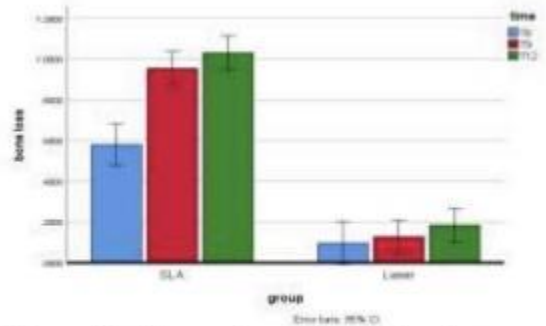


Figure (8): Comparison of bone loss between same group at different observation time

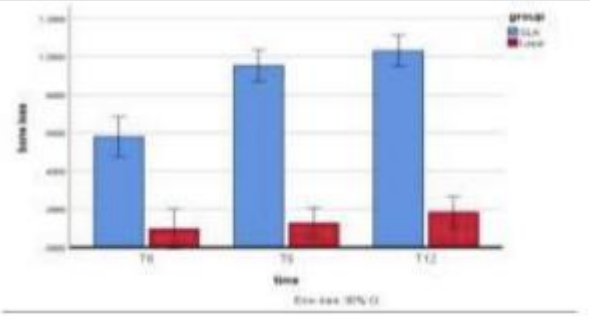


Figure (9): Comparison of bone loss between both groups at different observation time

6M bone loss : SLA 0.58 > Laser 0.09

12M bone loss: SLA 1.03 > Laser 0.18

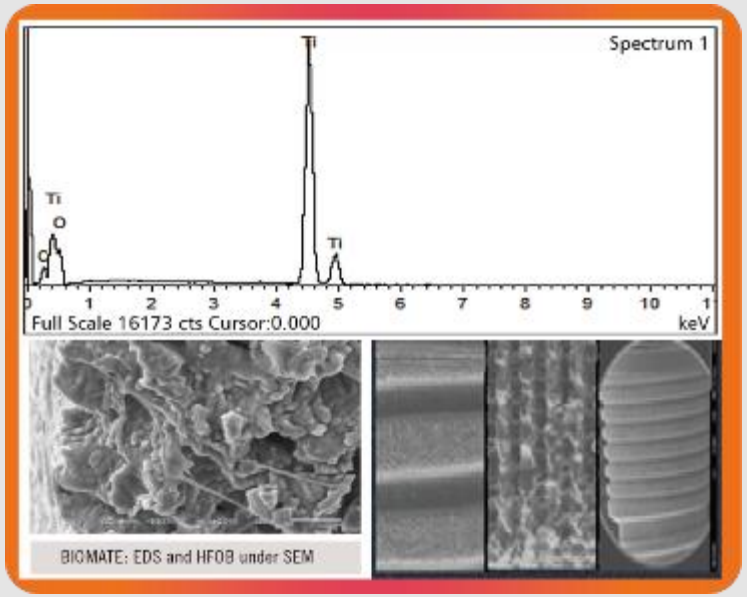
Compared to implants from major manufacturers, BiomateSWISS has the largest bone contact surface area.

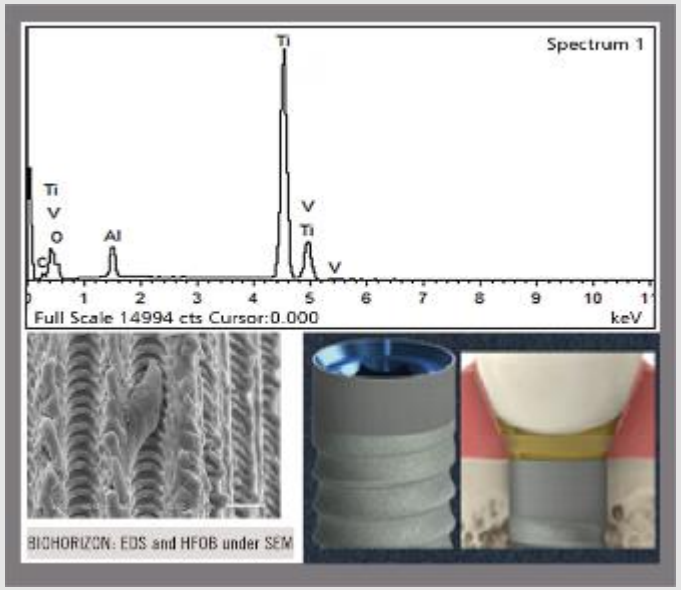
Brand Name	BiomateSWISS	Nobel Biocare	Biomate 3i	Biohorizons	Straumann ITI
Thread Design	Trapezoid	Serrated (Buttress)	Triangular (V Shape)	Rectangle (Square)	
Implant Design					
BIC Value (Implant Size 4x12)	(Implant size 4*12) 237.45mm	(Implant size 4*12) 167.1mm	(Implant size 4*11.5) 186.2mm	(Implant size 4*12) 206.5mm	(Implant size 4*12) 161.5mm
Data Source	BiomateSWISS R&D laboratory	Contemporary Implant Dentistry, 3rd Edition, Carl E. Misch, Mosby Page 241			

(Bone to Implant Contact) rate

Enhancing Bone Integration (Research at Mohido University, Thailand)

The surface structure promotes the osteoblast cells adhesion





The lack of cell maturity and cell adhesion in Biohorizons samples is still unknown. The presence of organic particles on the BIOMATE implants did not deter cell maturation in this invitro experiment.

Laser surface treatment has many advantages, but different structures will also have different cell adhesion effects

Biohorizons Laser-Lok's shallow groove structure focuses on soft tissue

BiomateSwiss PDL micro-nano structure allows both soft and hard tissues to perform well

The Only One In The World. Ultimate Craftsmanship

PDL Laser Surface Treatment

- Best cell proliferation and osseointegration effect
- Taiwan's leading global technology

Excellent biocompatibility

- Increase rapid distribution and stability of cells
- Shorten healing time

Blood Affinity

- Blood quickly attaches to the implant surface
- Accelerate the growth of bone cells

Environment Friendly Manufacturing Process

- No chemical elements remain on implant
- Trustworthy quality