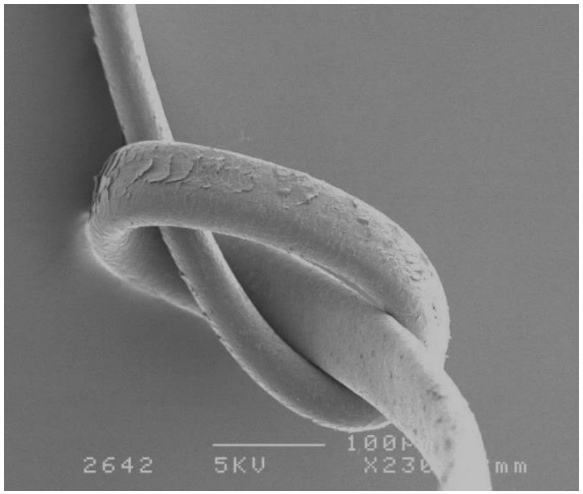
COSMÉTIQUE *IN SITU* DANS LE MEB



PHILIPPE HALLEGOT

L'ORÉAL R&I

Remerciements A. Camacho, S. Diridollou L'Oréal USA

1 LES MISSIONS DE LA COSMÉTIQUE

- *Définition*
- *Les différents domaines*

2 SCIENCE ET COSMÉTIQUE

- *Archéo-cosmétique*
- *R&D*

3 MEB ET COSMÉTIQUE

- *Dimensions des structures*

Cheveu, peau, produits

- *Le MEB, un micro-laboratoire*

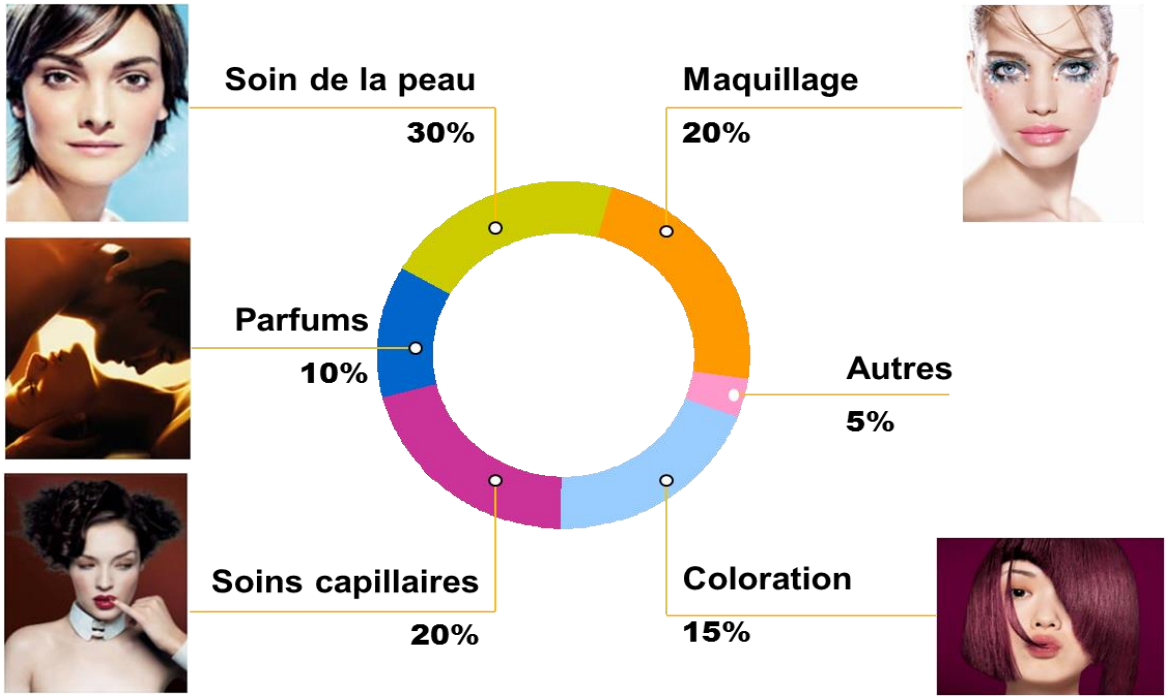
- *Traitements capillaires*
- *Soin de la peau*
- *Le solaire*
- *Les antitranspirants*

L'ORÉAL
Recherche & Innovation

LES MISSIONS DE LA COSMÉTIQUE

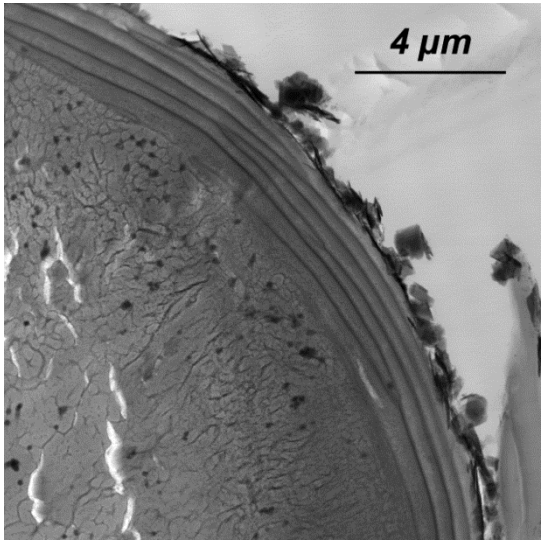
"Un produit cosmétique est une « substance ou un mélange destiné à être mis en contact avec les parties superficielles du corps humain en vue de les nettoyer, de les parfumer, d'en modifier l'aspect, de les protéger, de les maintenir en bon état ou de corriger les odeurs corporelles".

code de la santé publique (article L.5131-1)



SCIENCE ET COSMÉTIQUE

Époque gréco-romaine



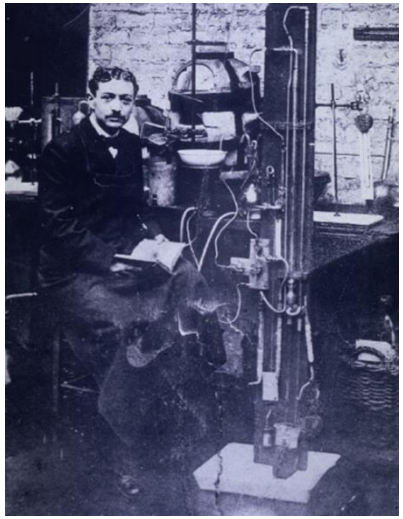
INVESTIGATION OF AN ANCIENT HAIR DYEING RECIPE BY SCANNING CONFOCAL ELECTRON MICROSCOPY

Philippe Hallégot 1*, René Bréniaux 1, Eléonore Welcomme 2, Philippe Walter 2 and Nestor J. Zaluzec 3.

1 L'Oréal Recherche, 2 C2RMF, 3 Argonne National Laboratory, Argonne, Il, USA 60439.

$PbO + Ca(OH)_2 + eau : PbS$

Chiffres 2014

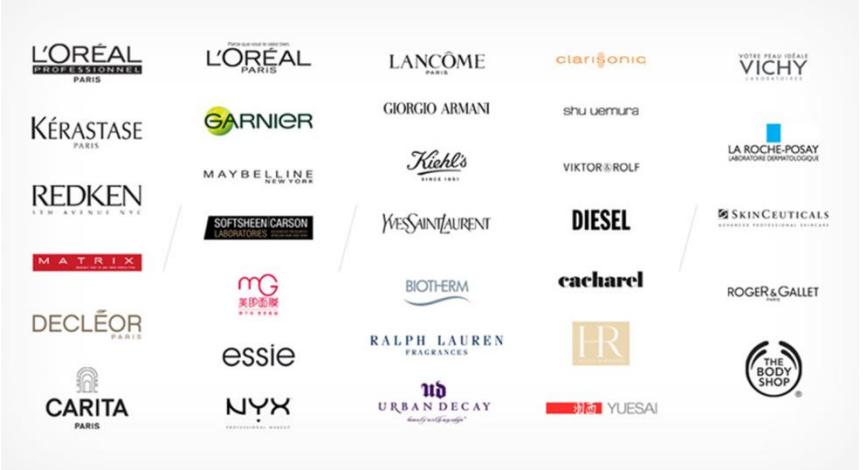


3782 chercheurs dans une trentaine de disciplines.

761 M€ de budget en 2014, soit 3,4% du chiffre d'affaire.

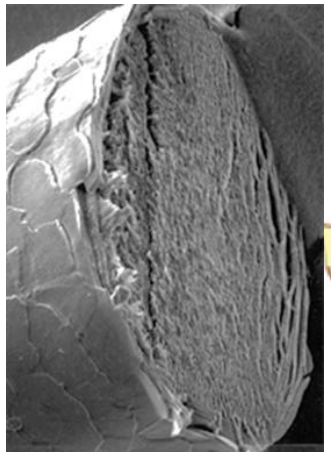
Premier TEM/STEM dans le Groupe 1976, premier MEB 1982. Actuel 1 TEM/STEM, 6 MEB + centres de microscopie

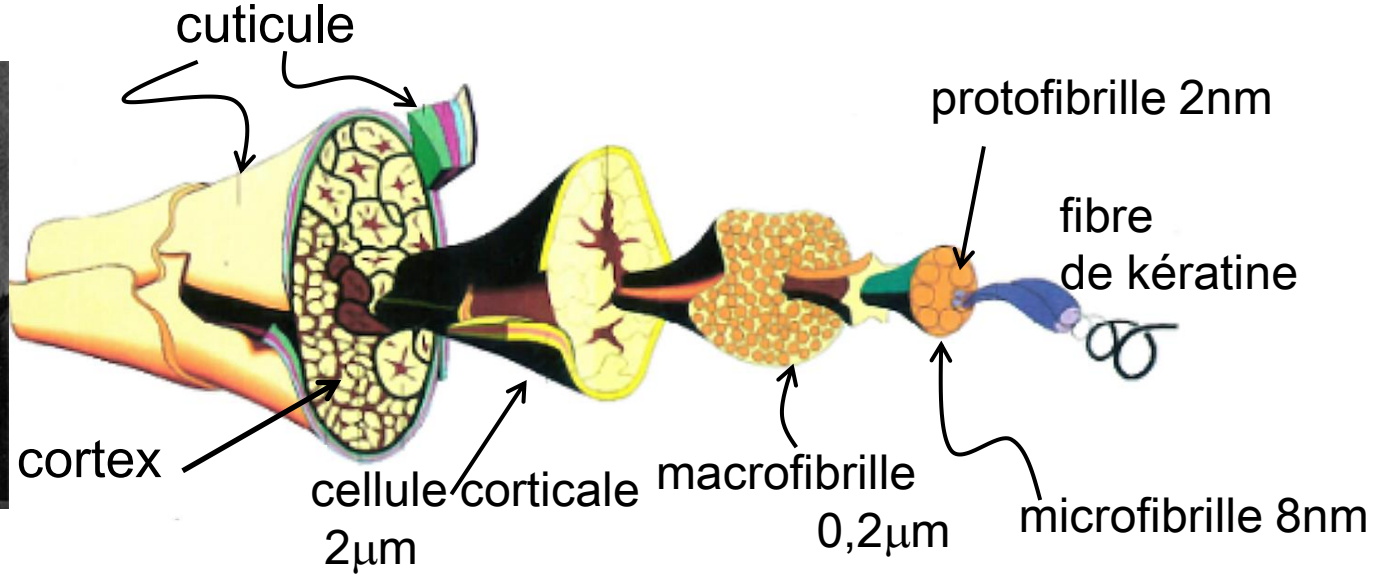
Une recherche dédiée à une trentaine de marques.

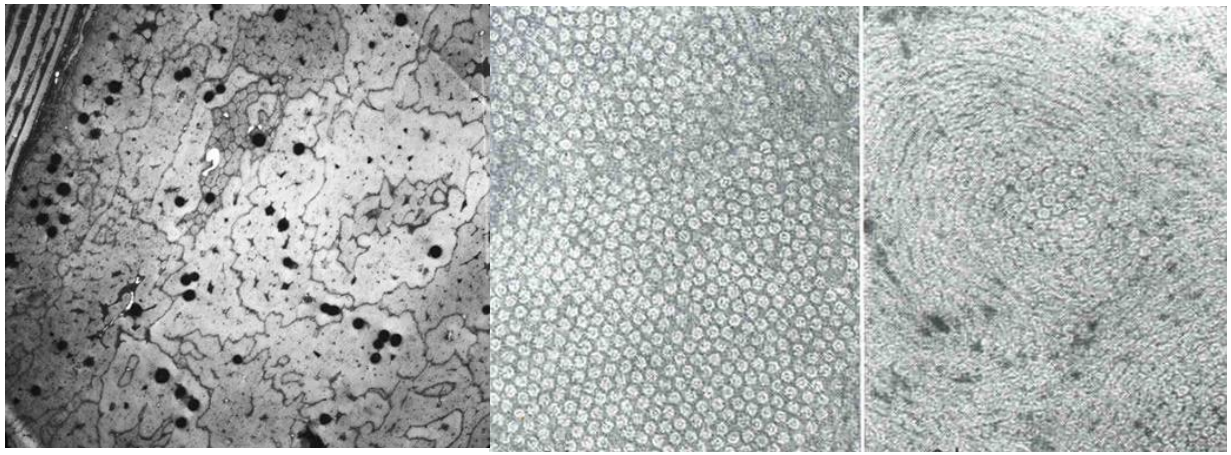


LES DIMENSIONS STRUCTURALES DES SUBSTRATS

LA STRUCTURE DU CHEVEU



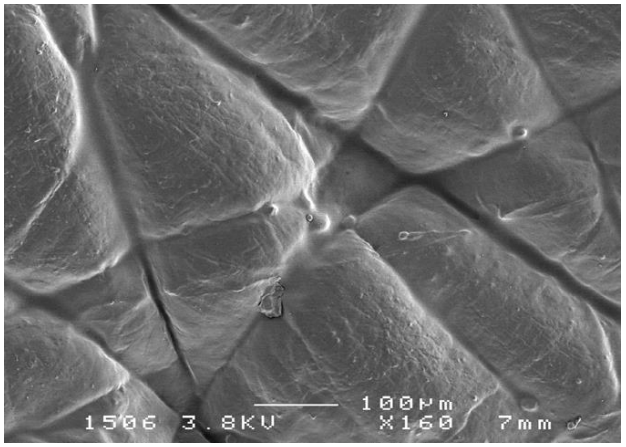


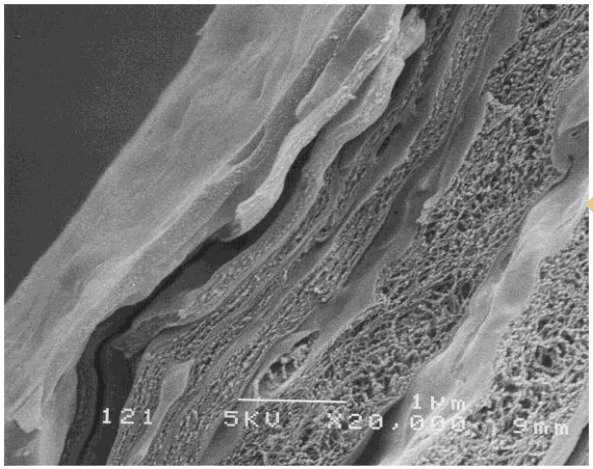


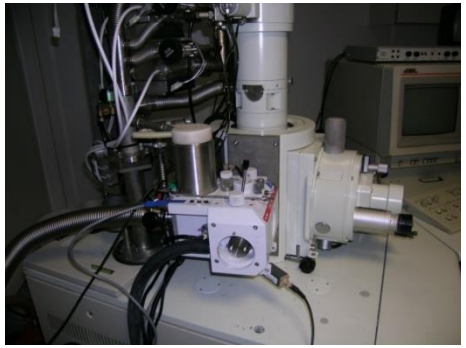
MEB ET COSMÉTIQUE

LES DIMENSIONS STRUCTURALES DES SUBSTRATS

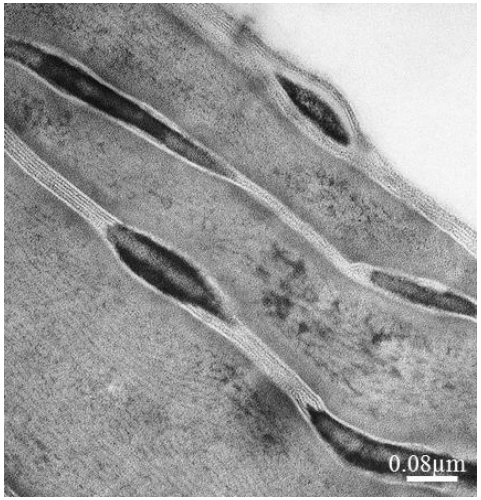
LA STRUCTURE DE LA PEAU

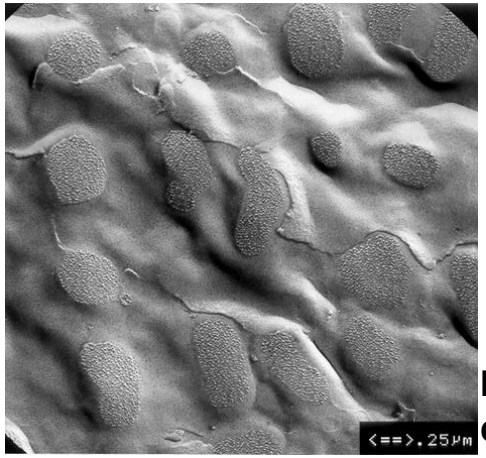




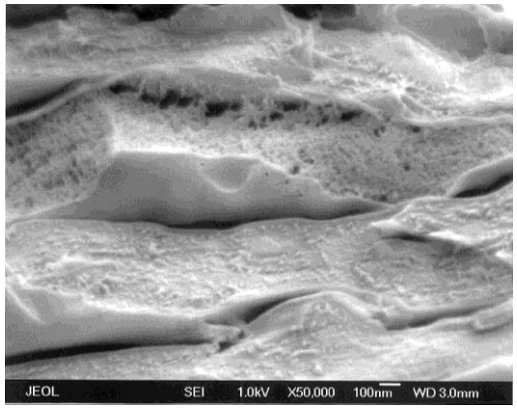


Cryo-MEB





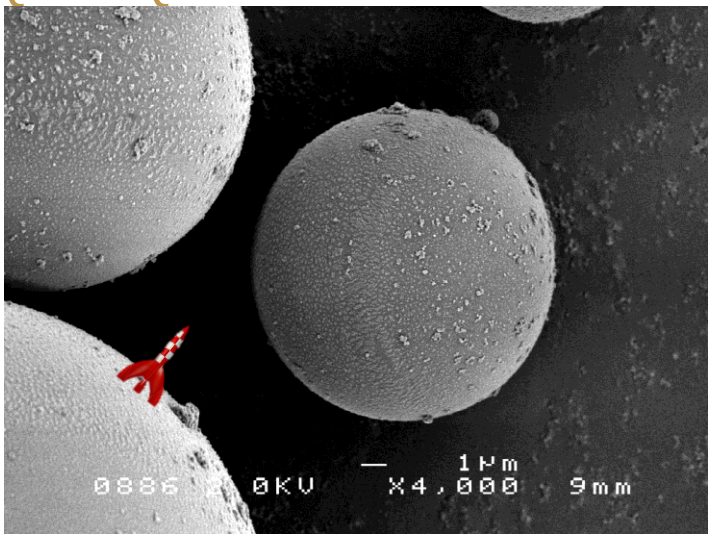
Réplique de cryofracture



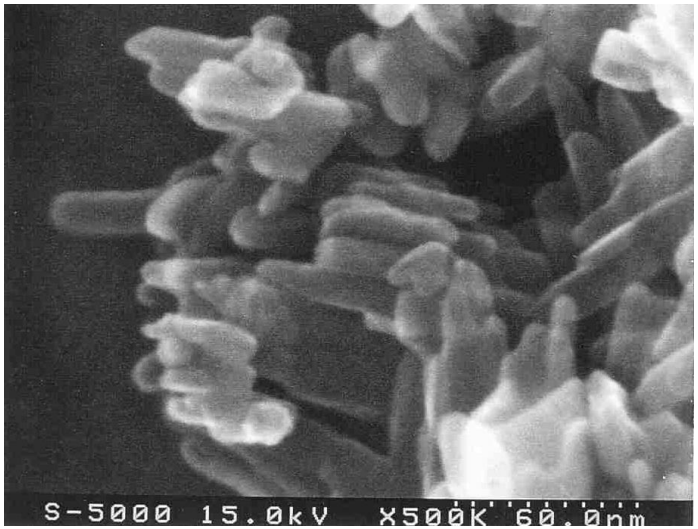
MEB ET COSMÉTIQUE

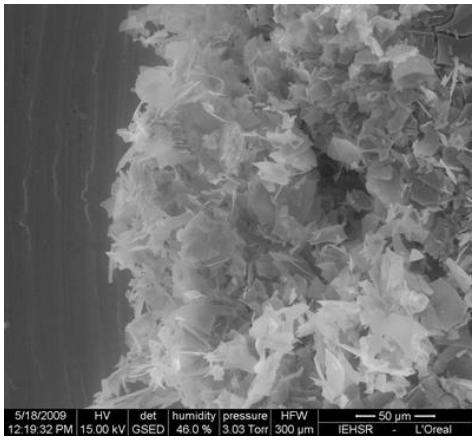
LES DIMENSIONS STRUCTURALES DES PRODUITS

QUELQUES MATIERES PREMIERES



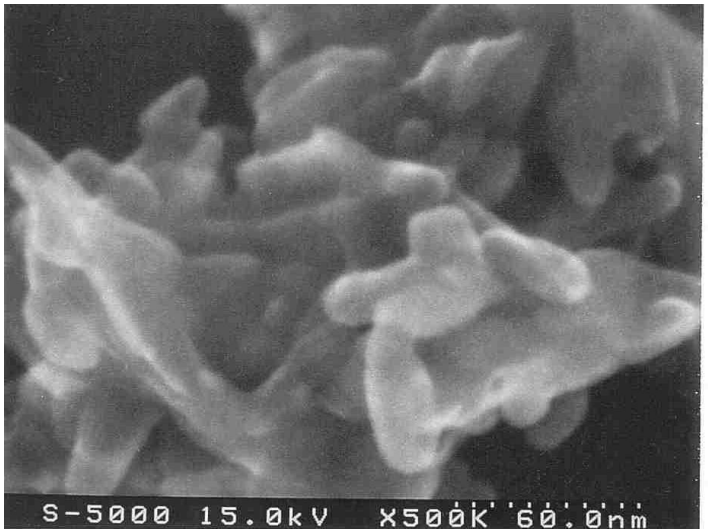
Soin





Antitranspirant

Solaire



L'ORÉAL
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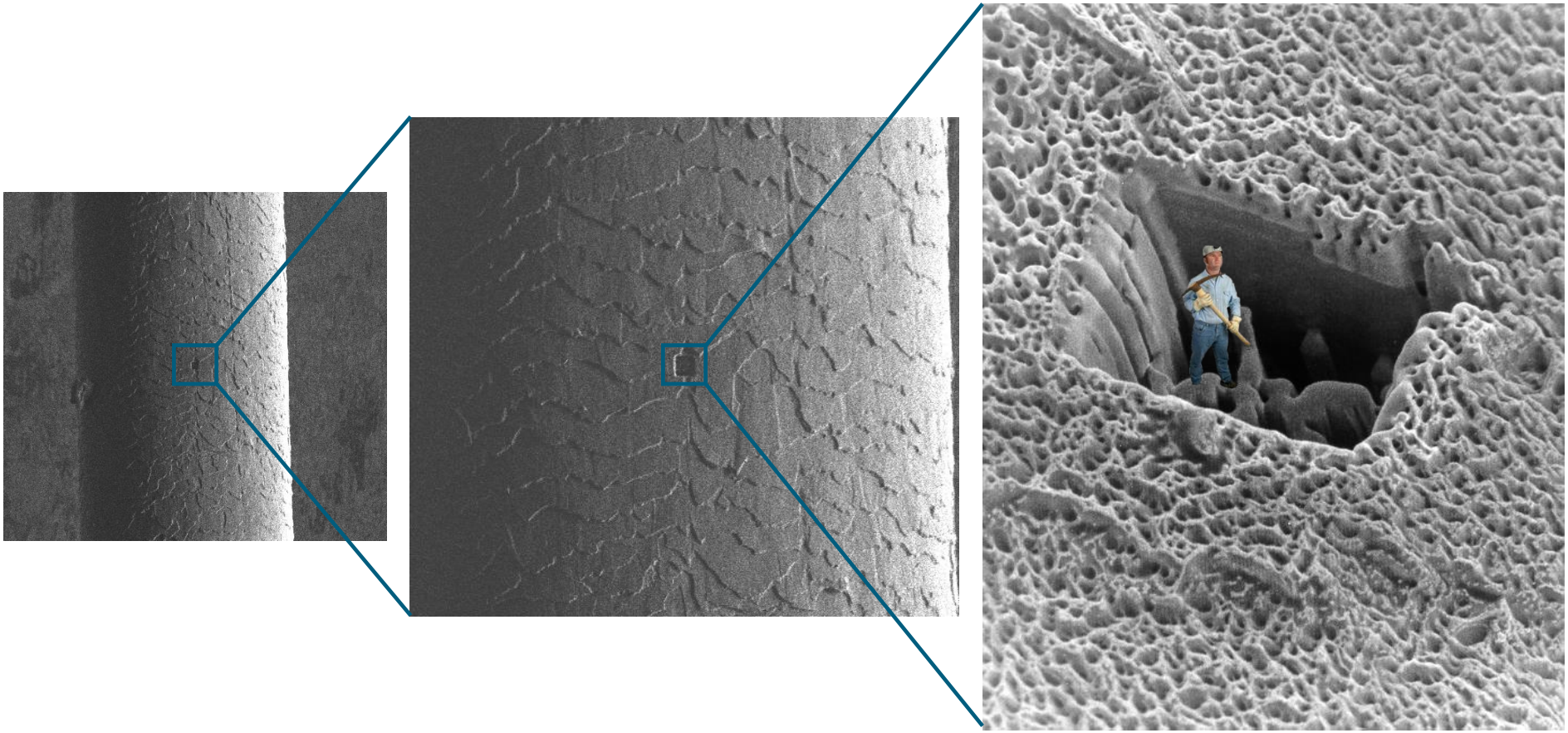
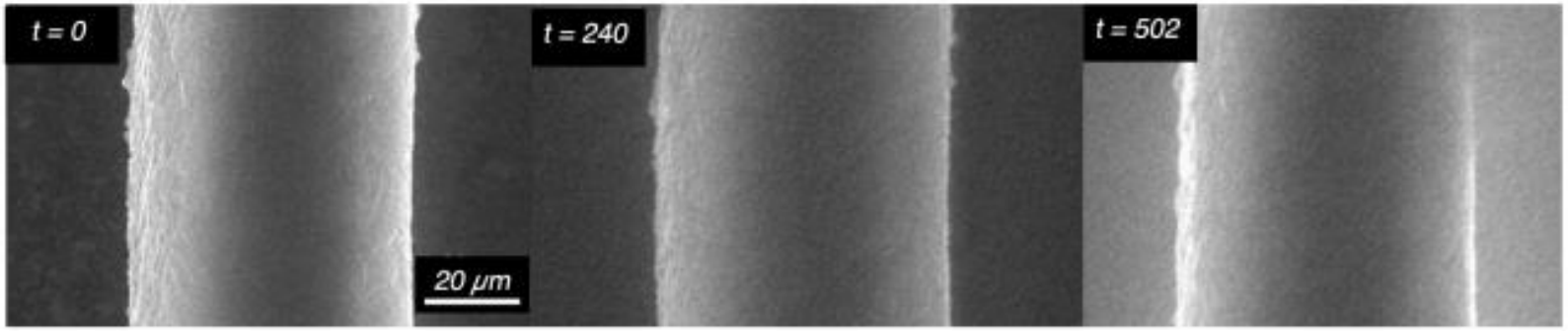
LE MEB, UN MICRO-LABORATOIRE

- *SONDE Ga^+ (UC-SIM)*

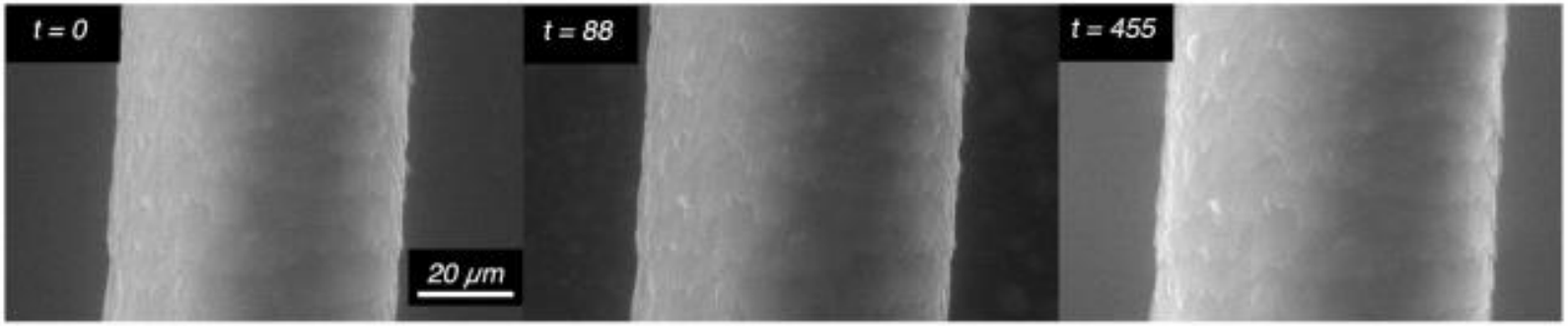


LE MEB, UN MICRO-LABORATOIRE

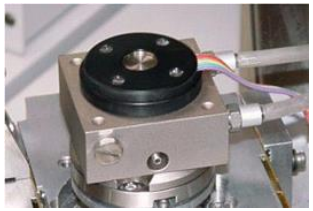
GONFLEMENT DU CHEVEU



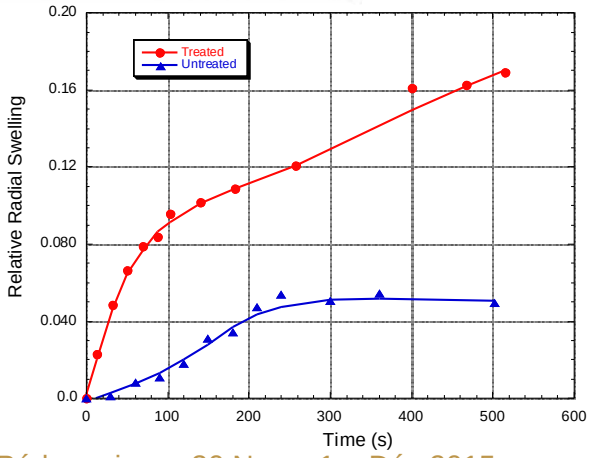
Cheveu témoin, 100% RH vs Time (s)



Cheveu traité, 100% RH vs Time (s)



Platine froide (Peltier)



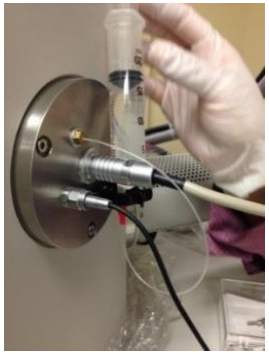
LE MEB, UN MICRO-LABORATOIRE

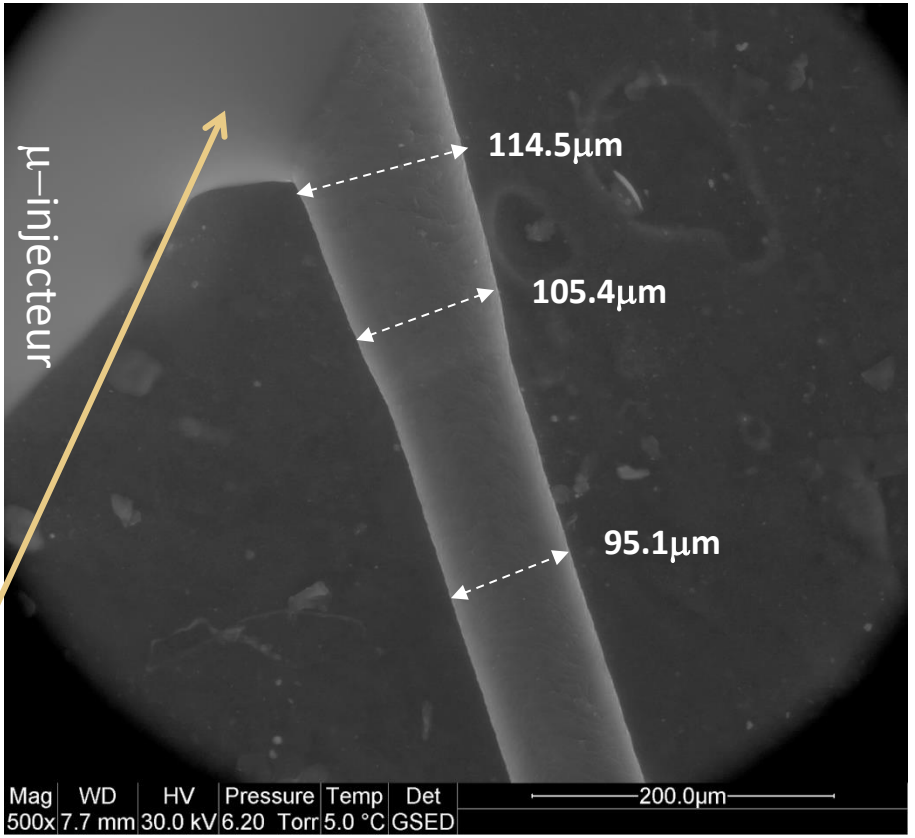
Application d'un produit cosmétique *in situ* par micro-injecteur







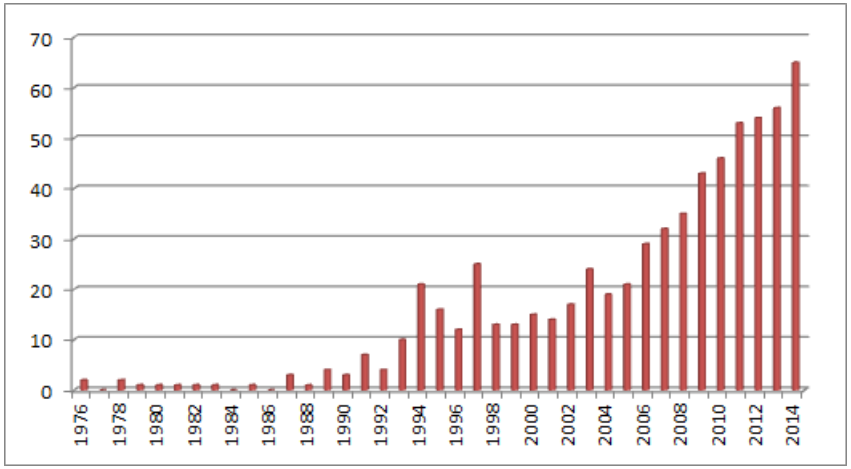




Etude du comportement du cheveu après application *in situ* de relaxer.

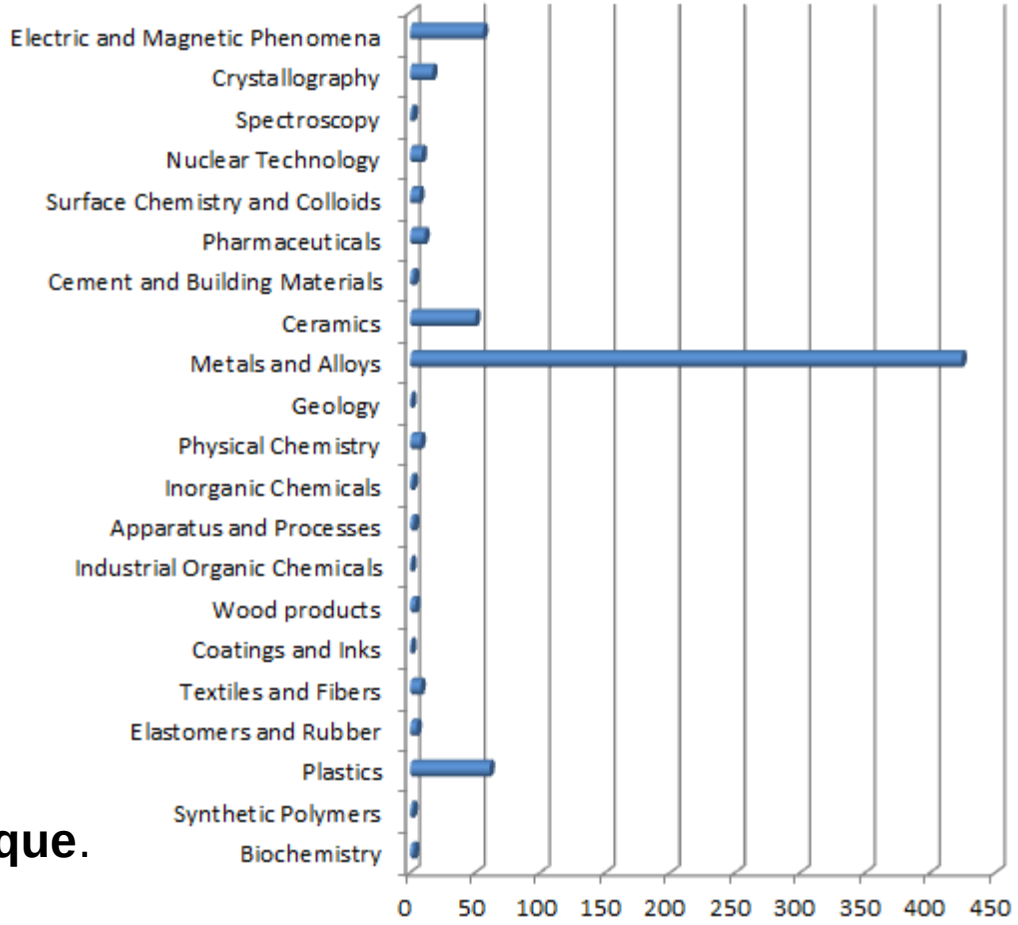
LE MEB, UN MICRO-LABORATOIRE

LA PLATINE DE TRACTION: APERÇU BIBLIOGRAPHIQUE



Forte augmentation du nombre de publications par année depuis 2006.

Catégorisation des 688 références bibliographiques



Une dizaine de références seulement concernent le domaine de la cosmétique.

LE MEB, UN MICRO-LABORATOIRE
LA PLATINE DE TRACTION: APPLICATION AU CHEVEU

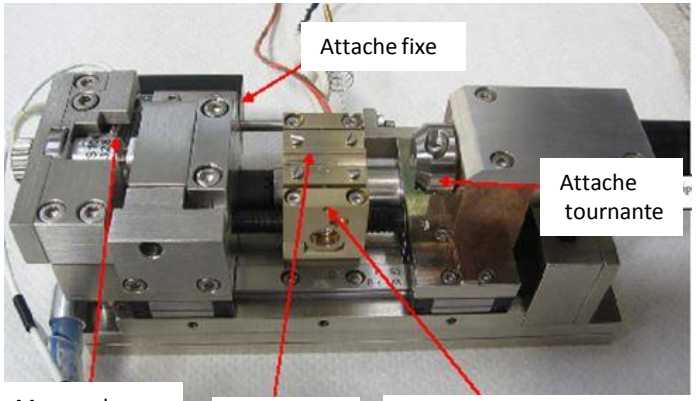
- Force maximale : 2N.

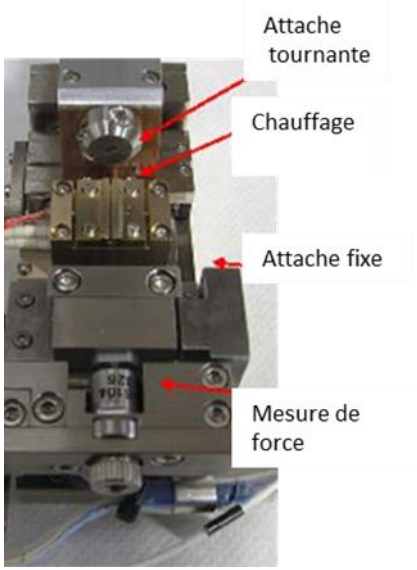
- Fibres de 20mm de longueur, débattement de 20mm.

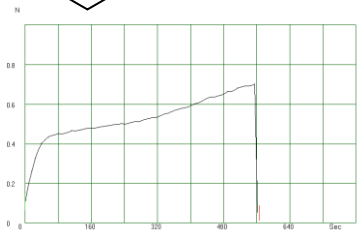
- Vitesses de tractions : 0.1 à 1.5 mm/min.

- Rotation de la fibre.

- Température : 0°C à 200°C.



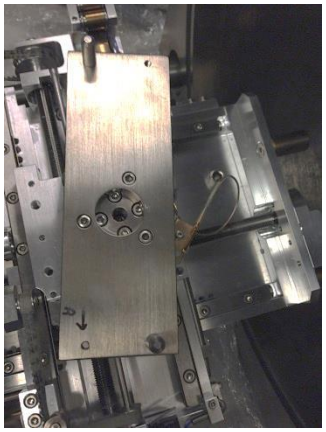


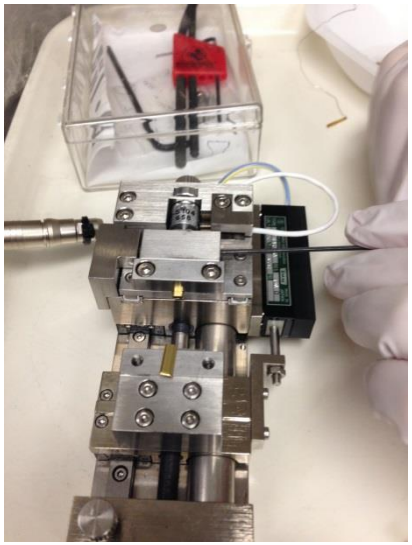
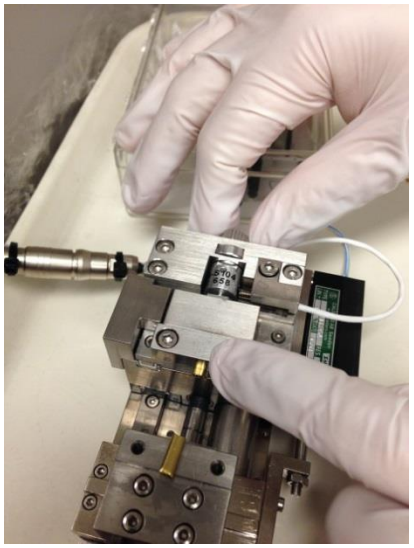
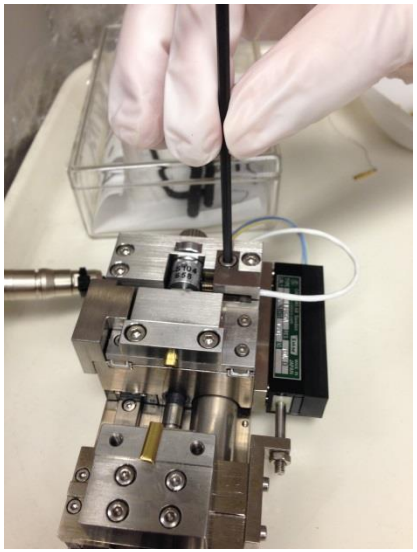
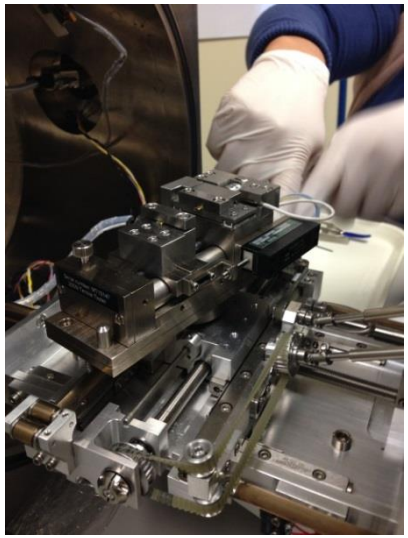


LE MEB, UN MICRO-LABORATOIRE

LA PLATINE DE TRACTION: APPLICATION AU CHEVEU

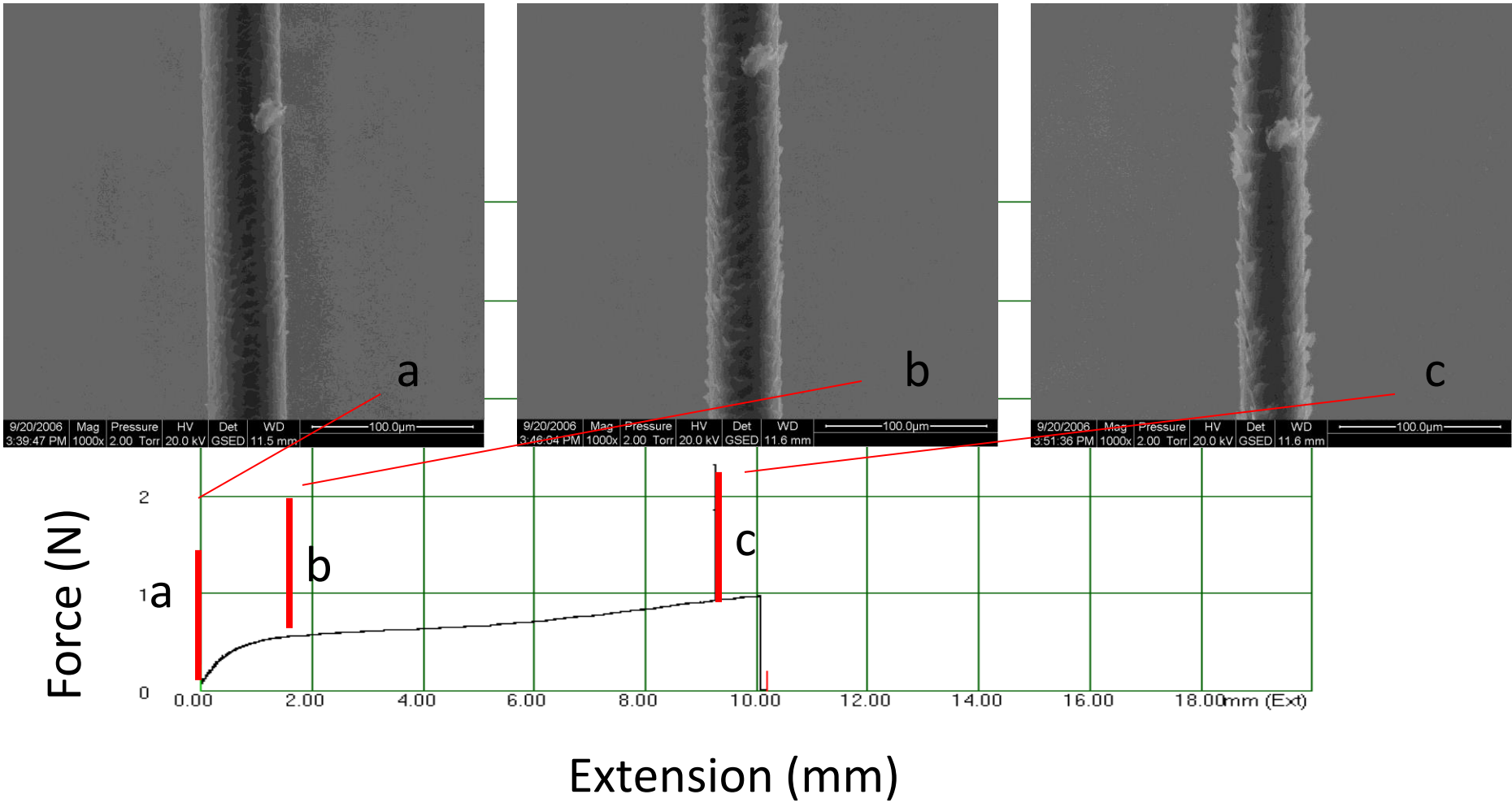
ASPECTS PRATIQUES

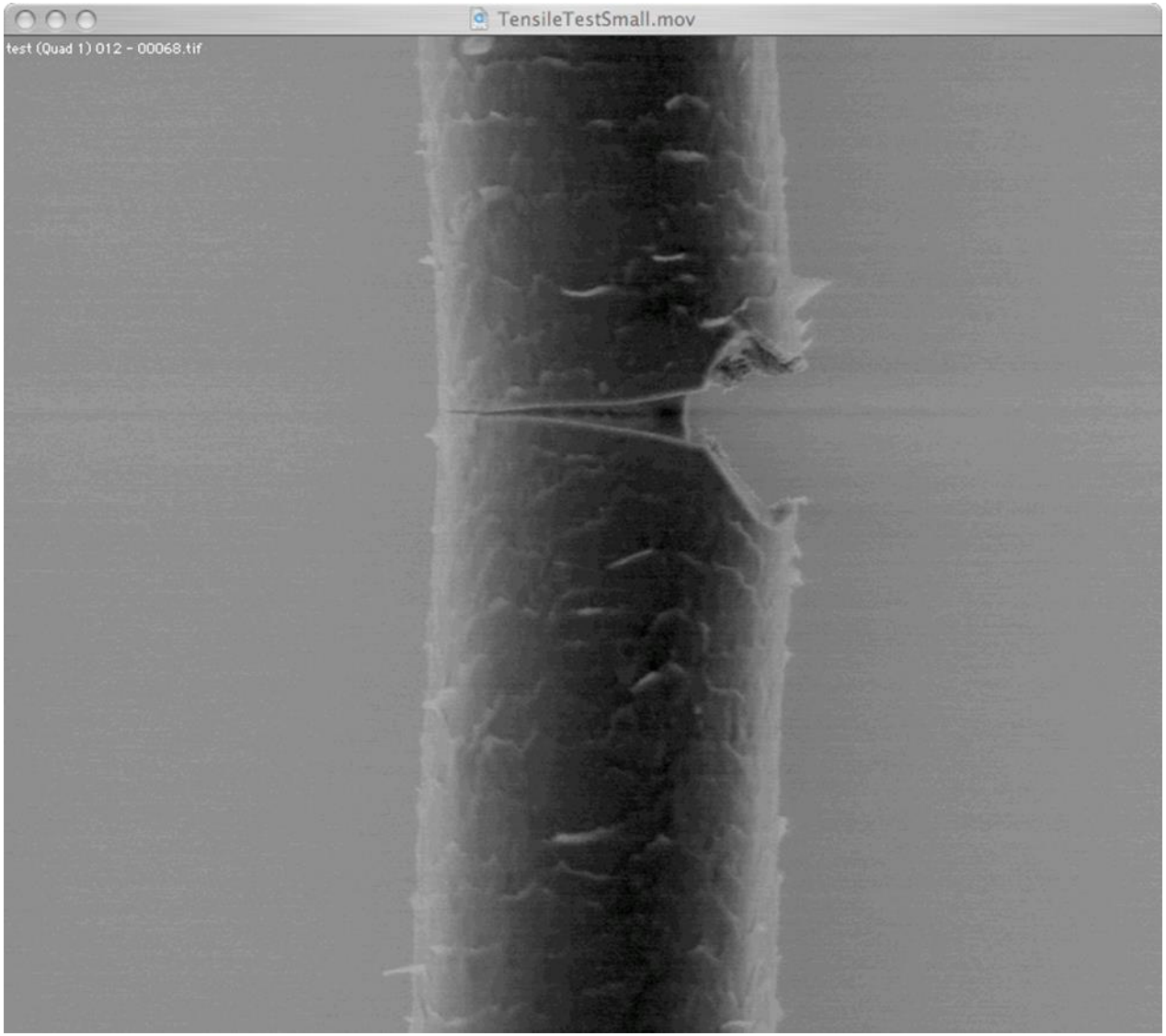
LE MEB, UN MICRO-LABORATOIRE
LA PLATINE DE TRACTION:

APPLICATION AU CHEVEU



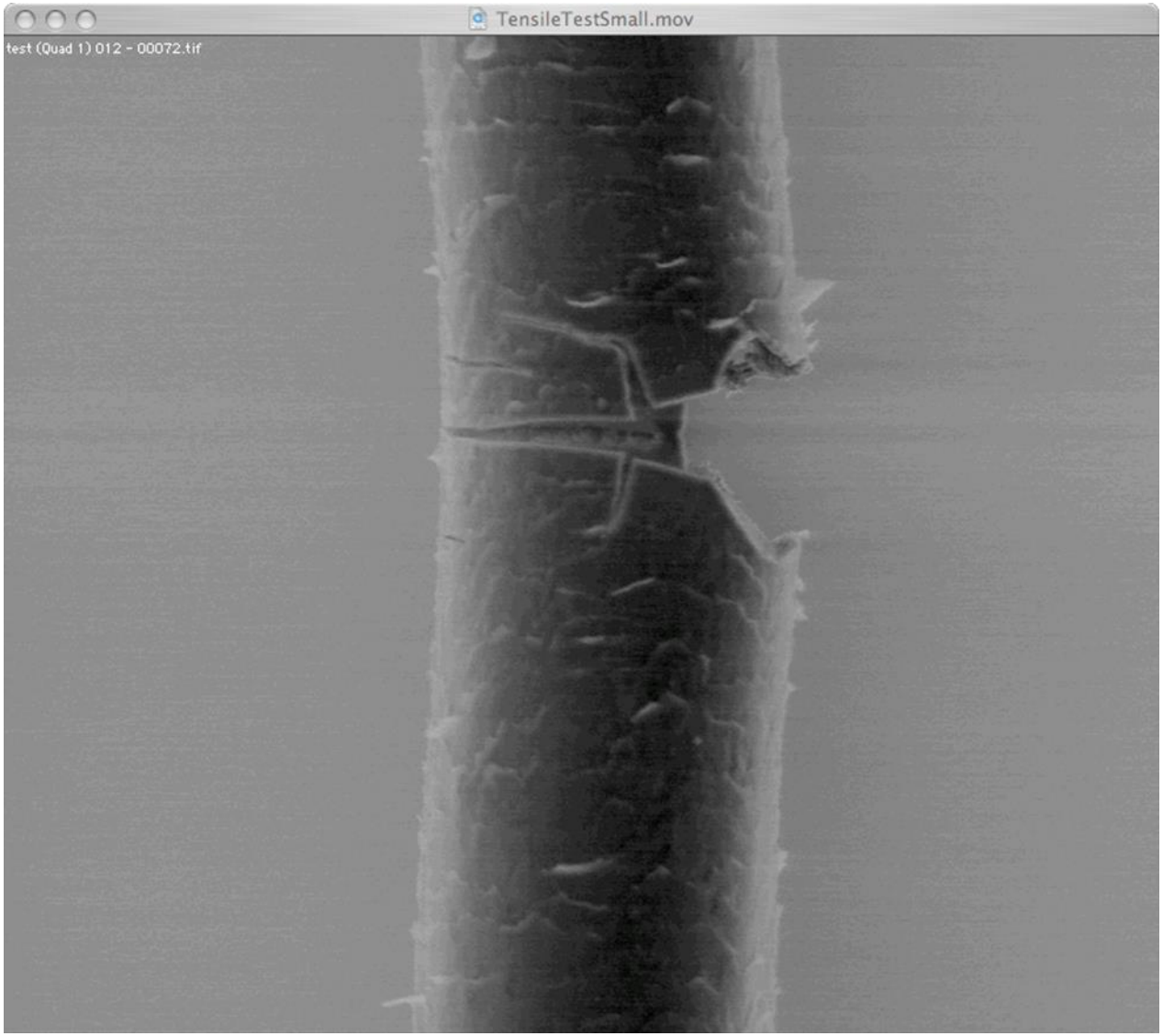
LE MEB, UN MICRO-LABORATOIRE

LA PLATINE DE TRACTION: CHEVEU



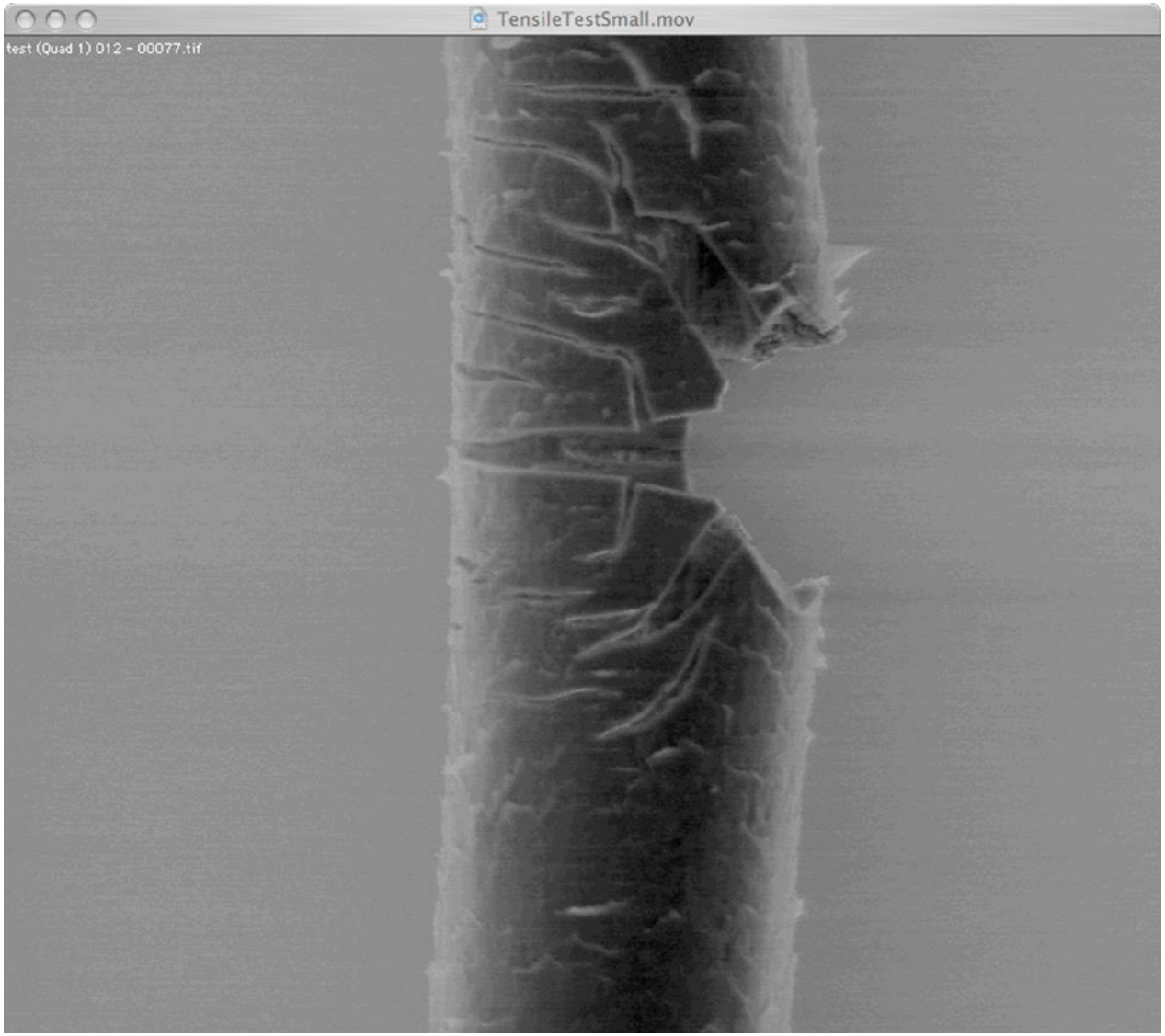
LE MEB, UN MICRO-LABORATOIRE

LA PLATINE DE TRACTION: CHEVEU



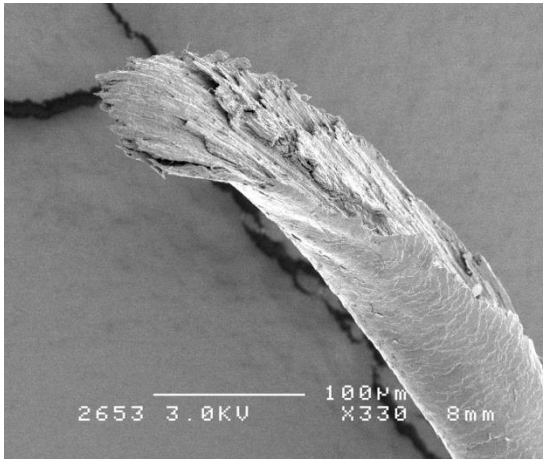
LE MEB, UN MICRO-LABORATOIRE

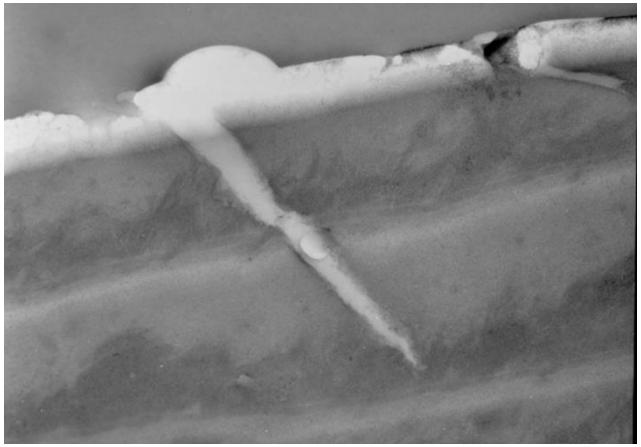
LA PLATINE DE TRACTION: CHEVEU

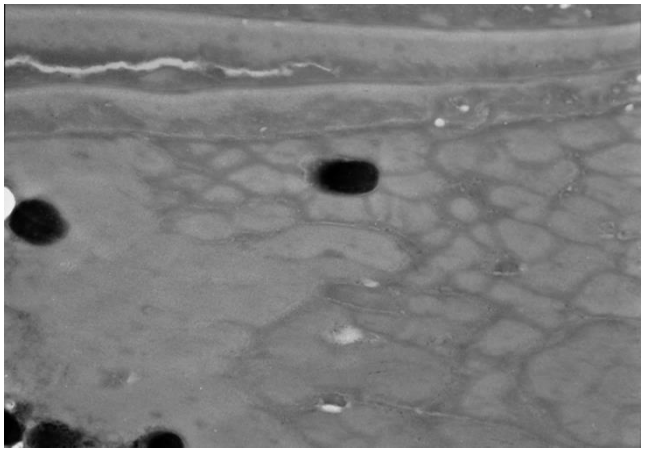


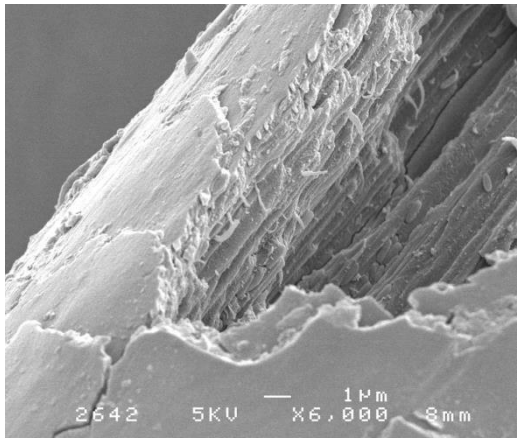
LE MEB, UN MICRO-LABORATOIRE

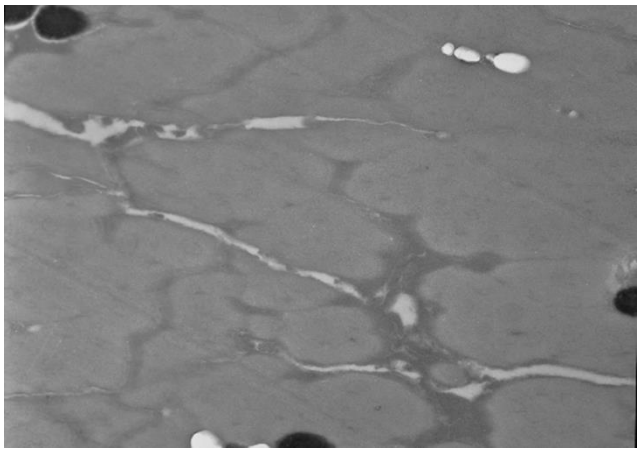
LA PLATINE DE TRACTION: CHEVEU

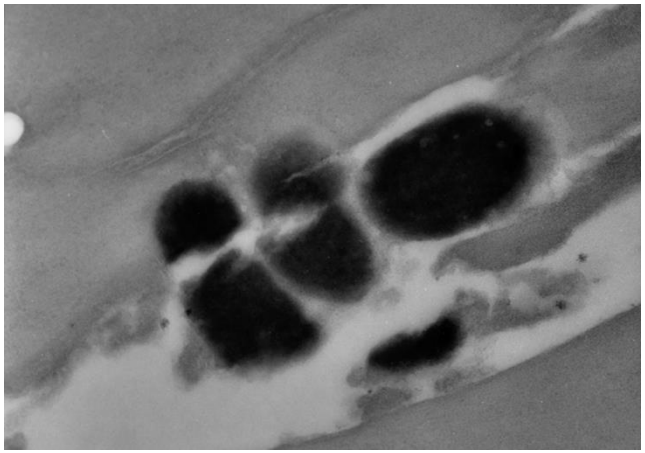










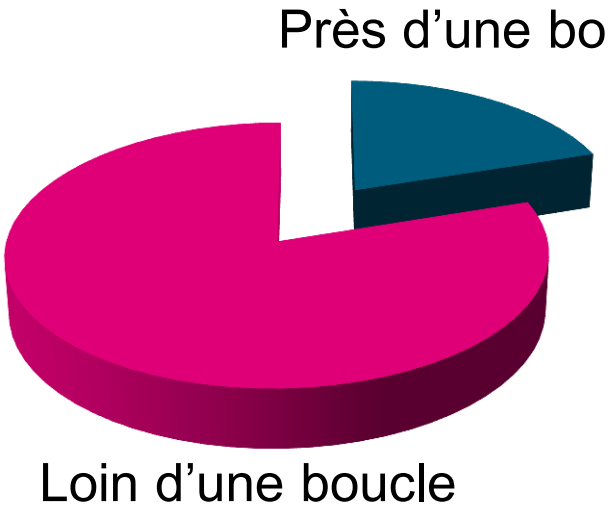


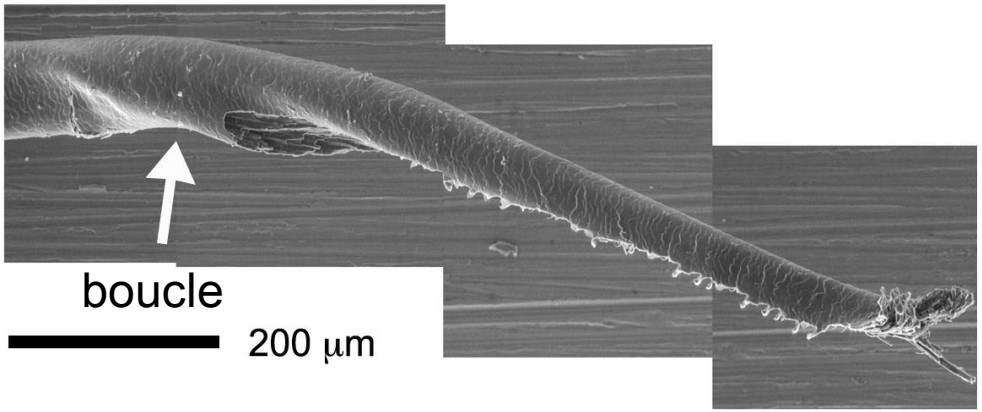
Observations complémentaires par MEB et MET après cassures

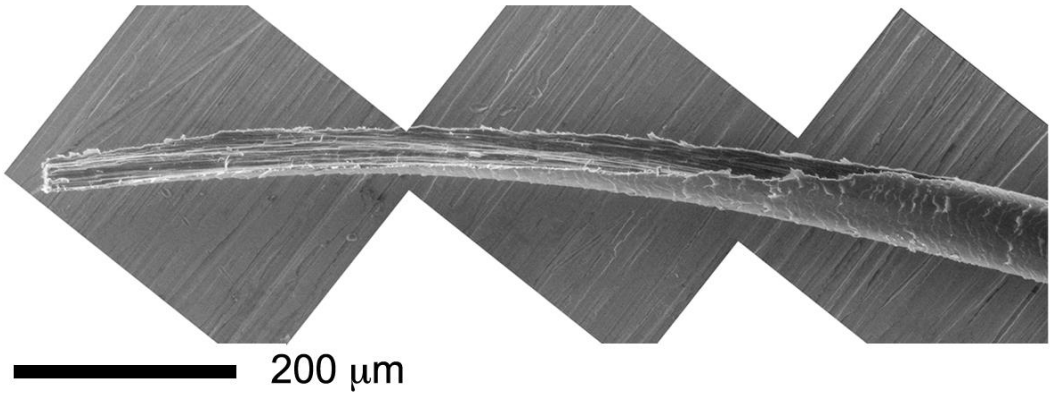
LE MEB, UN MICRO-LABORATOIRE

LA PLATINE DE TRACTION

COMPRENDRE LE PHÉNOMÈNE DE CASSURE DU CHEVEU FRISÉ





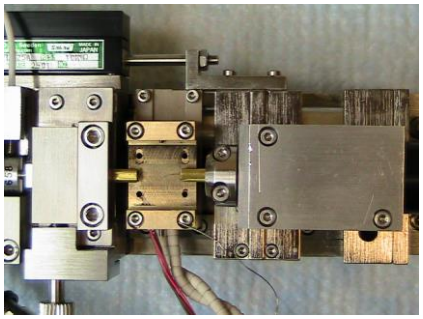


LE MEB, UN MICRO-LABORATOIRE

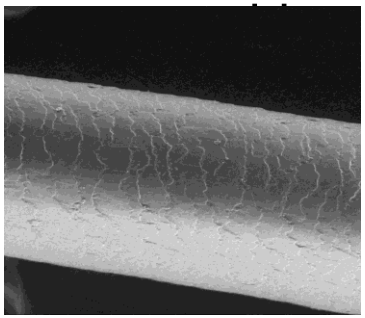
LA PLATINE DE TRACTION

COMPRENDRE LE PHÉNOMÈNE DE CASSURE DU CHEVEU FRISÉ

Platine de traction

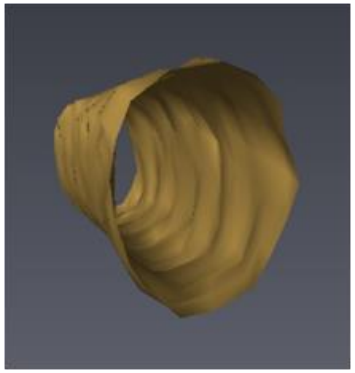


MEB

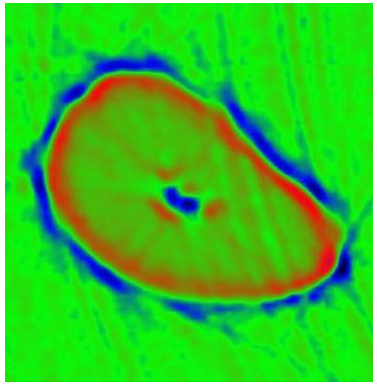


Surface de la fibre

Synchrotron X-ray



Reconstructions 3D



Coupes transversales

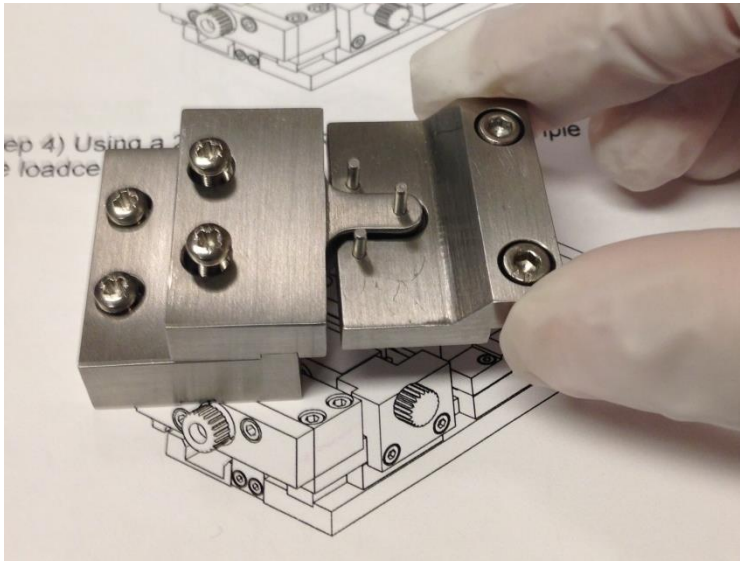
Séparation cuticule-cortex

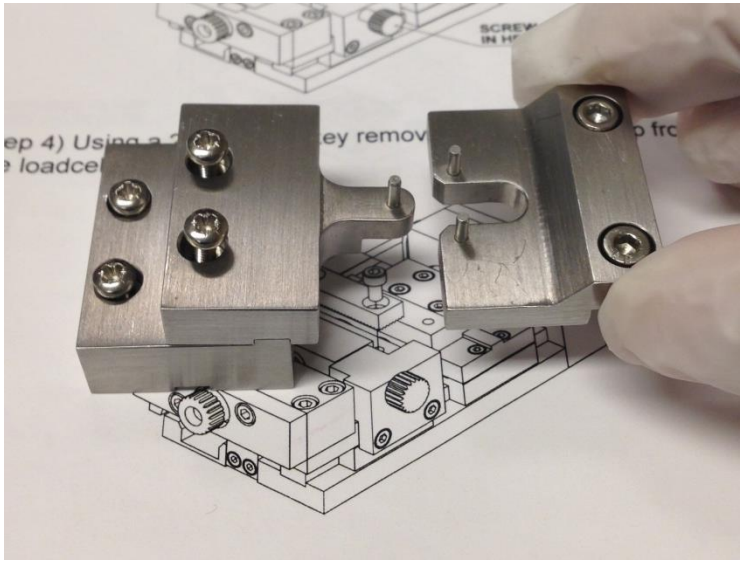
Remerciements G. Balooch, L'Oréal USA

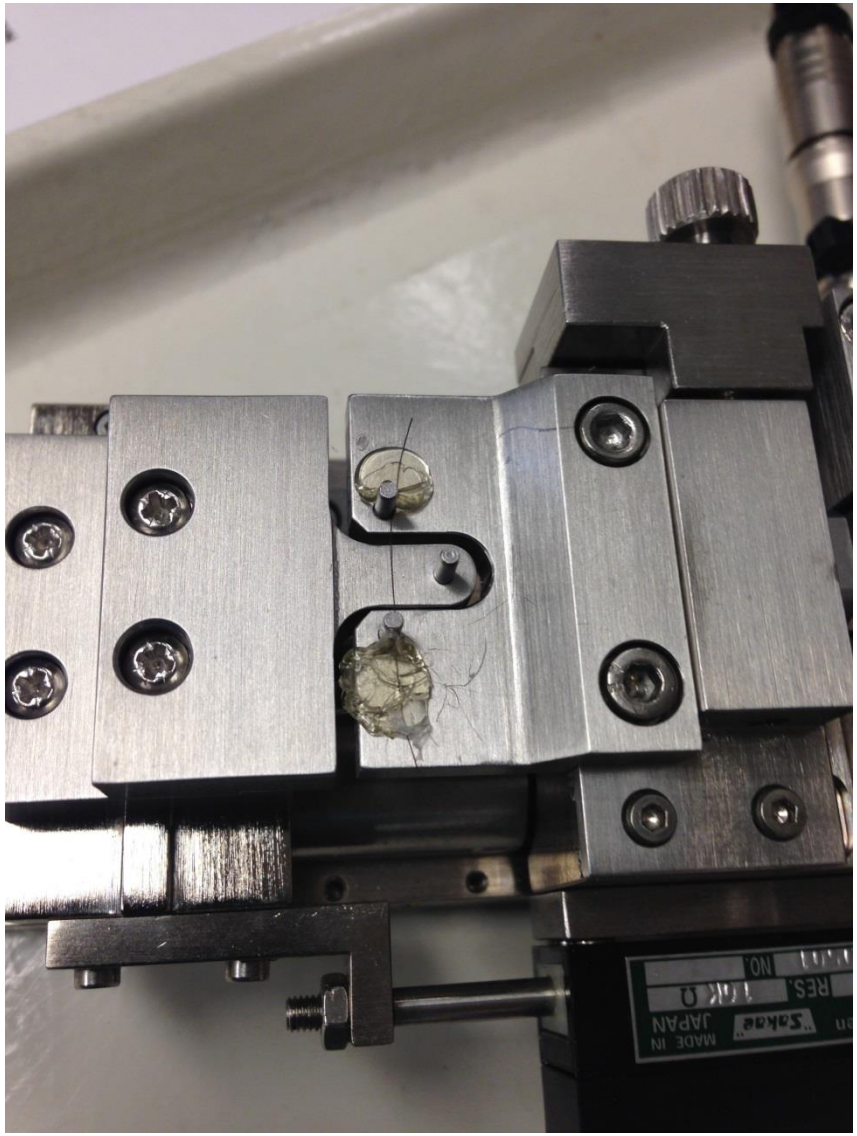
XTM performed at the Advanced Light Source at Lawrence Berkeley National Laboratory, supported by the Office of Science, U.S. DOE (DE-AC02-05CH11231)

LE MEB, UN MICRO-LABORATOIRE

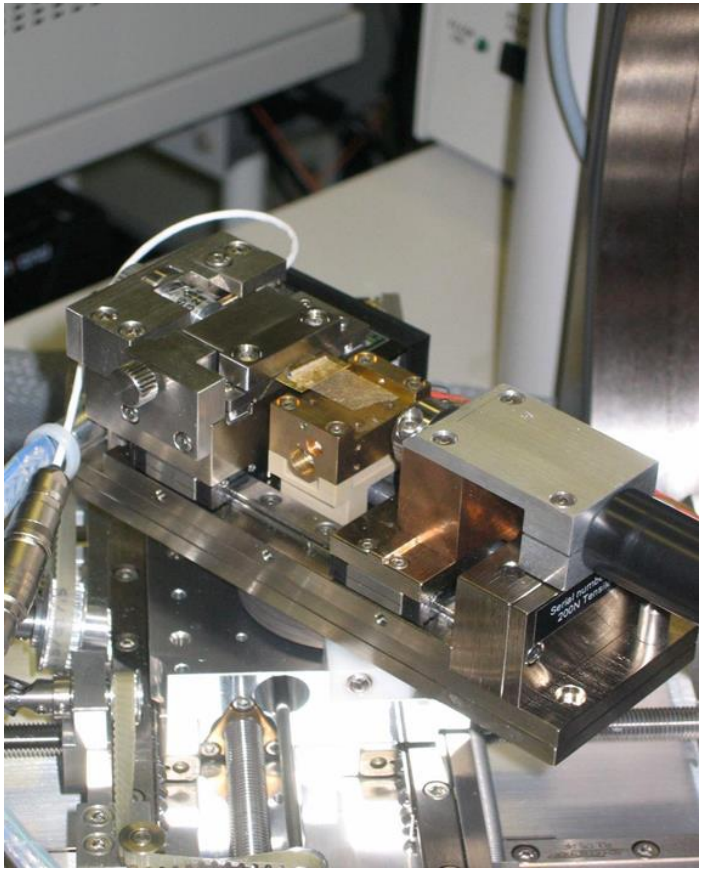
LA PLATINE DE TRACTION: CHEVEU

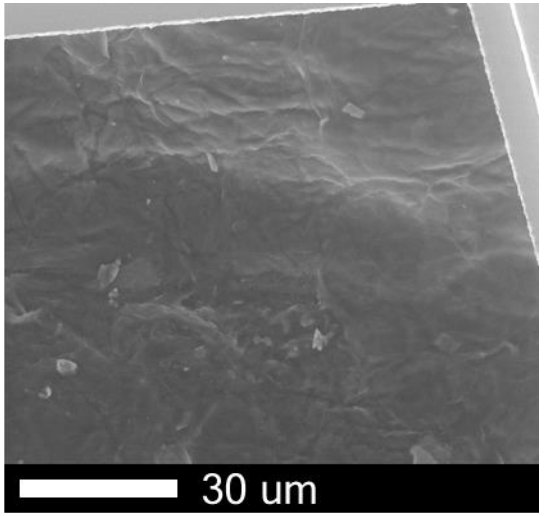


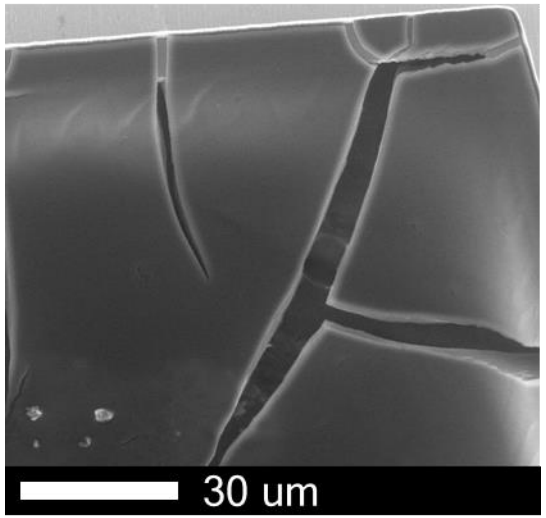




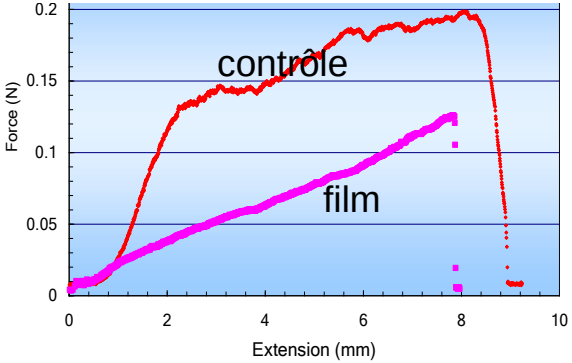
LE MEB, UN MICRO-LABORATOIRE
LA PLATINE DE TRACTION: SOIN DE LA PEAU



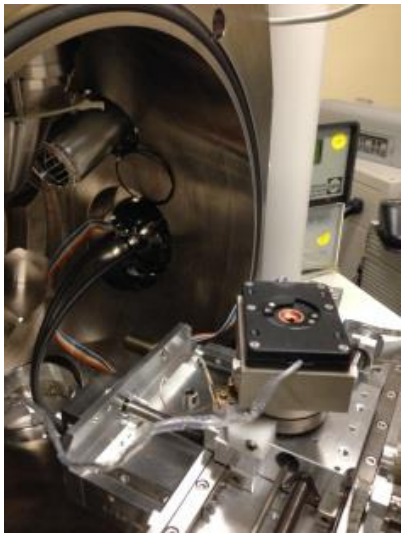




Contrôle de stratum corneum



Comportement mécanique du stratum après application topique



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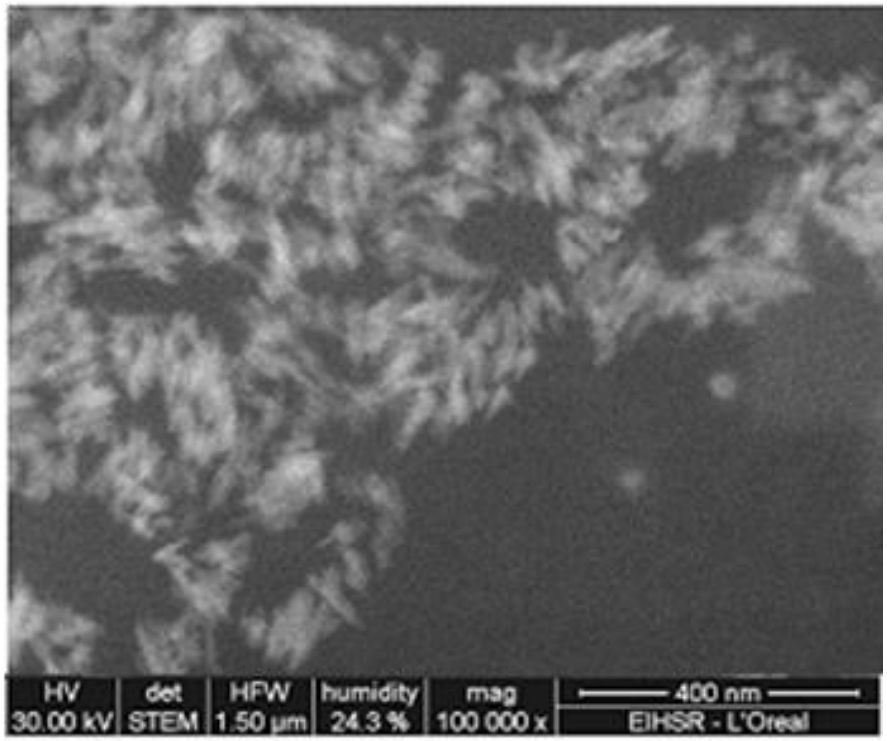
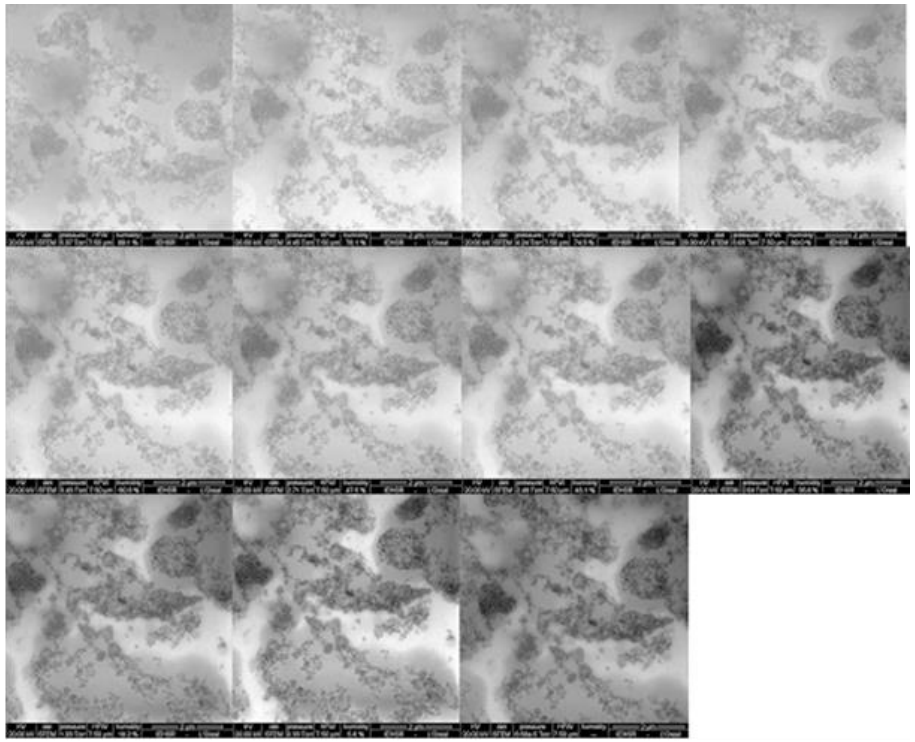
PRODUITS SOLAIRES : WET-STEM

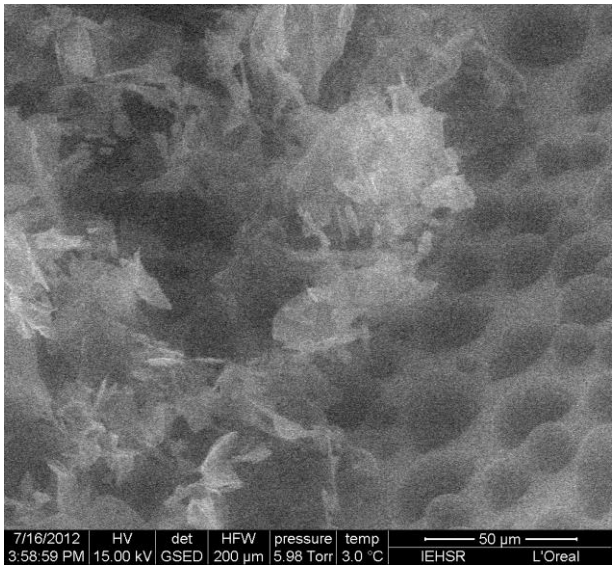
TiO_2



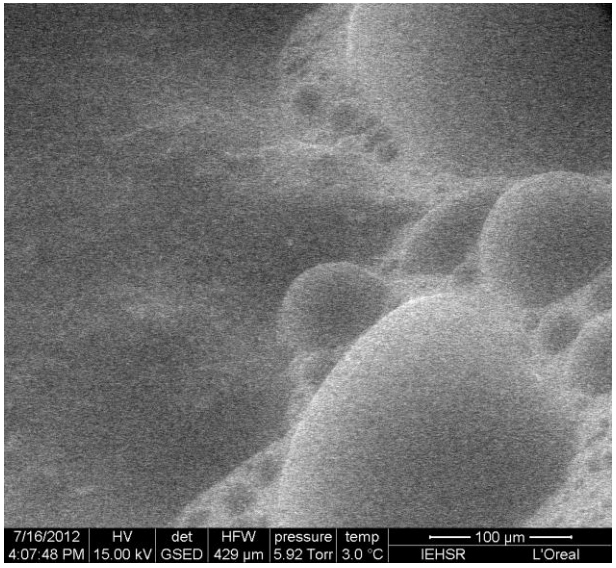


LE MEB, UN MICRO-LABORATOIRE
ANTITRANSPIRANTS

Début de condensation

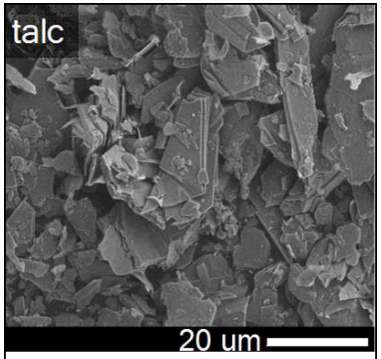


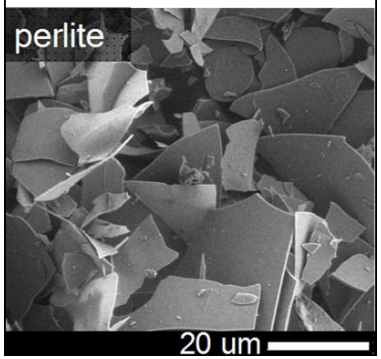
Humide



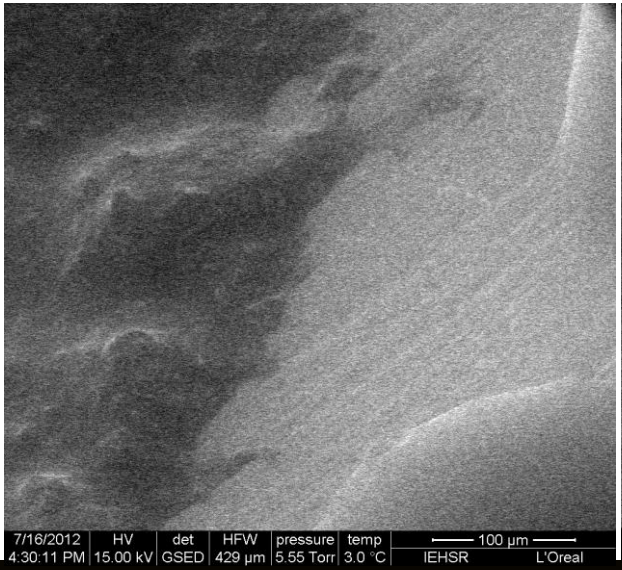
Perlite

In-situ : cycle hydratation-déshydratation.

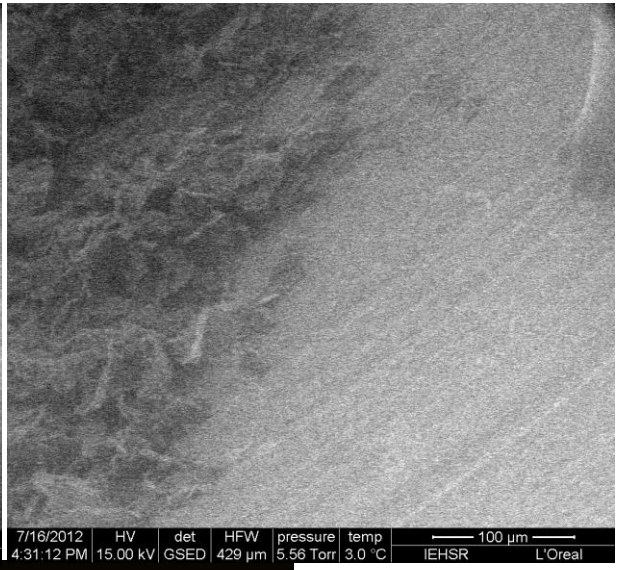




Début d'évaporation



Sec



Platine froide (Peltier)

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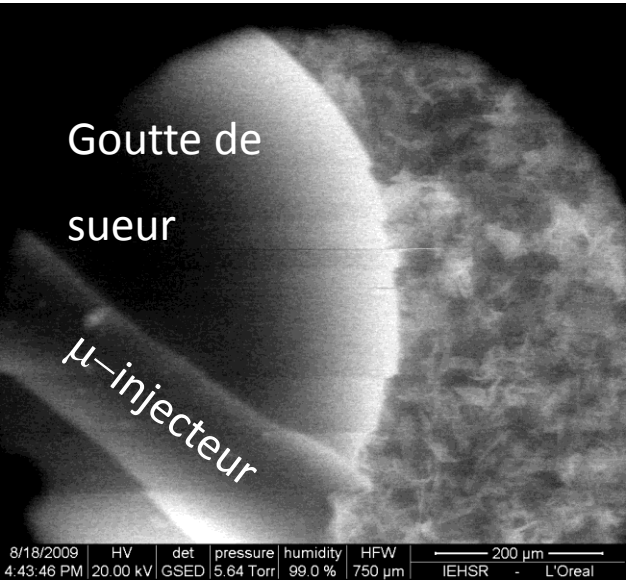
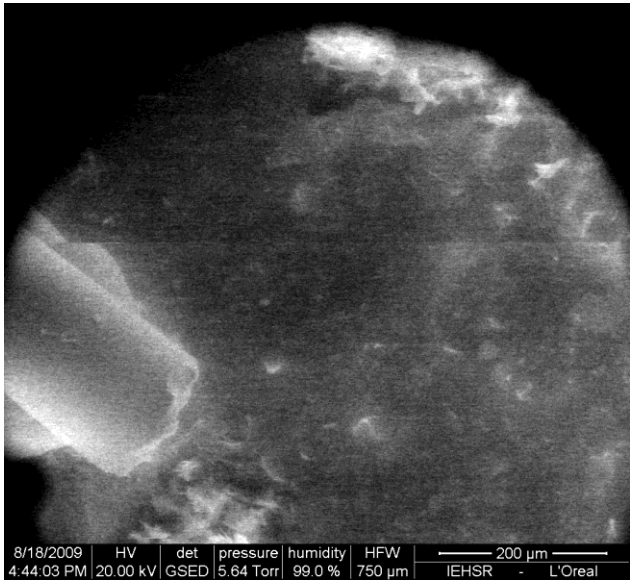
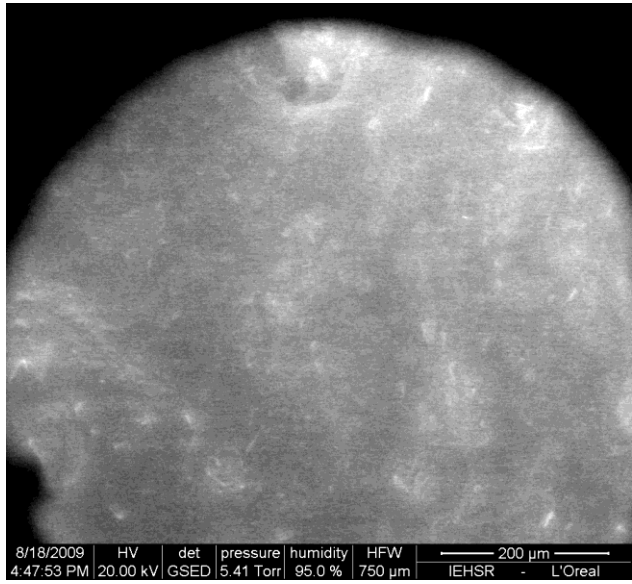
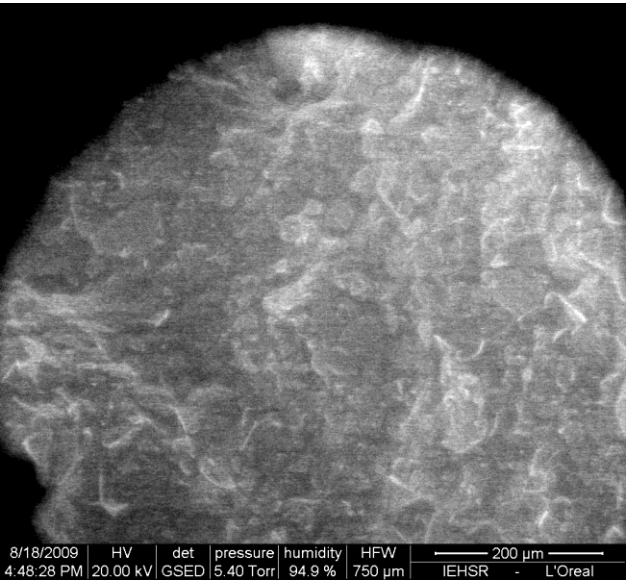
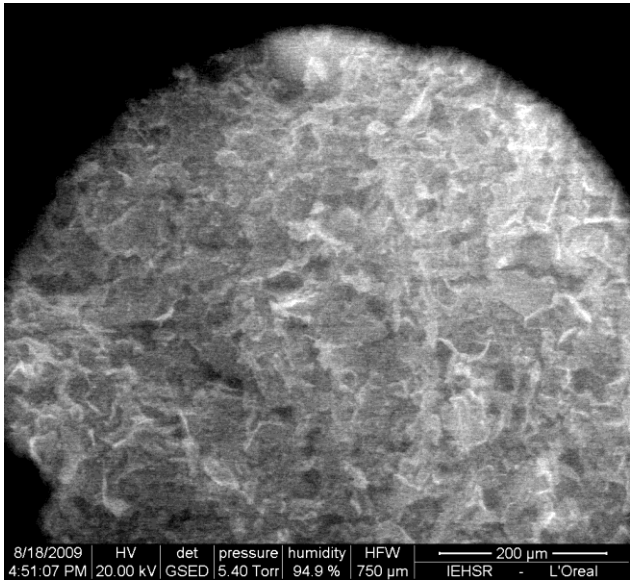
LE MICRO INJECTEUR: ANTITRANSPIRANT PERLITE

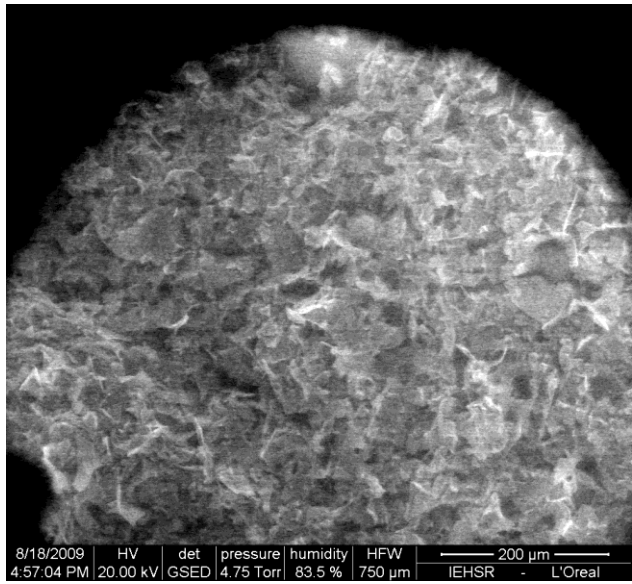












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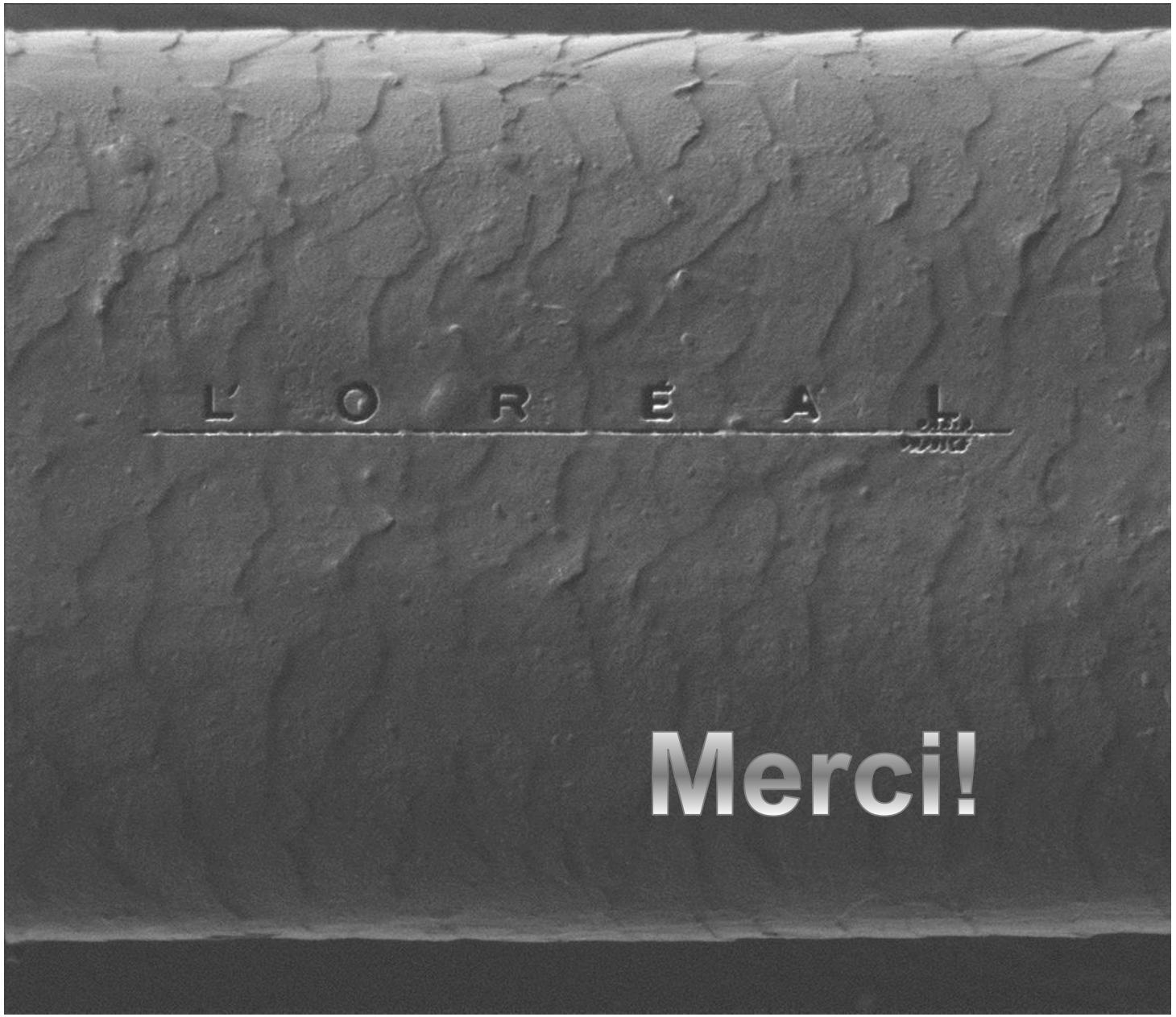
LE MICRO INJECTEUR, ANTITRANSPIRANTS, MODÉLISATION


L'ORÉAL
Merci!