

# Absorb testé pour vous

APPAC 2016

Patrice Guérin

François Huchet

Paul Pilet

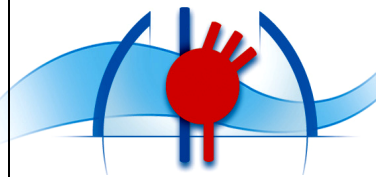
Fabienne Jordana

Unité d'Hémodynamique et CardioVasculaire Interventionnel

L'institut du thorax

Unité Inserm 791

Merci à Pascal MOTREFF et Olivier DARREMONT



JACQUES PERRIN  
présente

Sélection Officielle Cannes 1996  
Grand Prix de la CST



# MICROCOSMOS

*Le peuple de l'herbe*

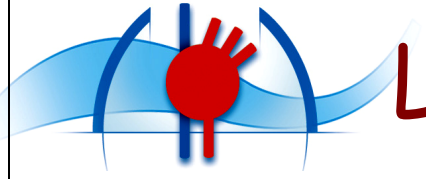
un film de  
CLAUDE NURIDSANY et MARIE PÉRENNOU

une coproduction GAI VIE FILMS - FRANCE 2 CINÉMA - KAI FILMS  
DEUXIÈME FILM DES PRODUCTIONS JMH (Nantes) - TÉLÉVISION SUISSE ROMANDE - URANIA FILMS (Italie) avec la participation de CANAL+  
avec la participation de : CONSEIL GÉNÉRAL DE L'AYEYRON, SEVOIS DES MONTS ET LACS DU LÉVEZOU, CREDIT AGRICOLE, RÉGION MIDI-PYRÉNÉES,  
CENTRE NATIONAL DE LA CINÉMATOGRAPHIE, MINISTÈRE DE L'ÉCONOMIQUE ET DE L'ÉNERGIE ET DE L'ÉQUIPEMENT SUPPLÉMENTAIRE, AGENCE JULES VERNE,  
OFFICE FÉDÉRAL DE LA CULTURE DE BERNÉ, avec le soutien de LA FONDATION GAN POU-OU, LE CINÉMA, LA PROGRÉSSIVITÉ

Musique : MARIE JOSÈPHE YONOTTE, FLORENCE KIZAKO  
Casting : LAURENT QUAGLIO avec PHILIPPE BARREAU, BERNARD BERTRON, Monique Lenglet, EDUARD GUILLET, Lucienne Maréchal, Patrick Fournier

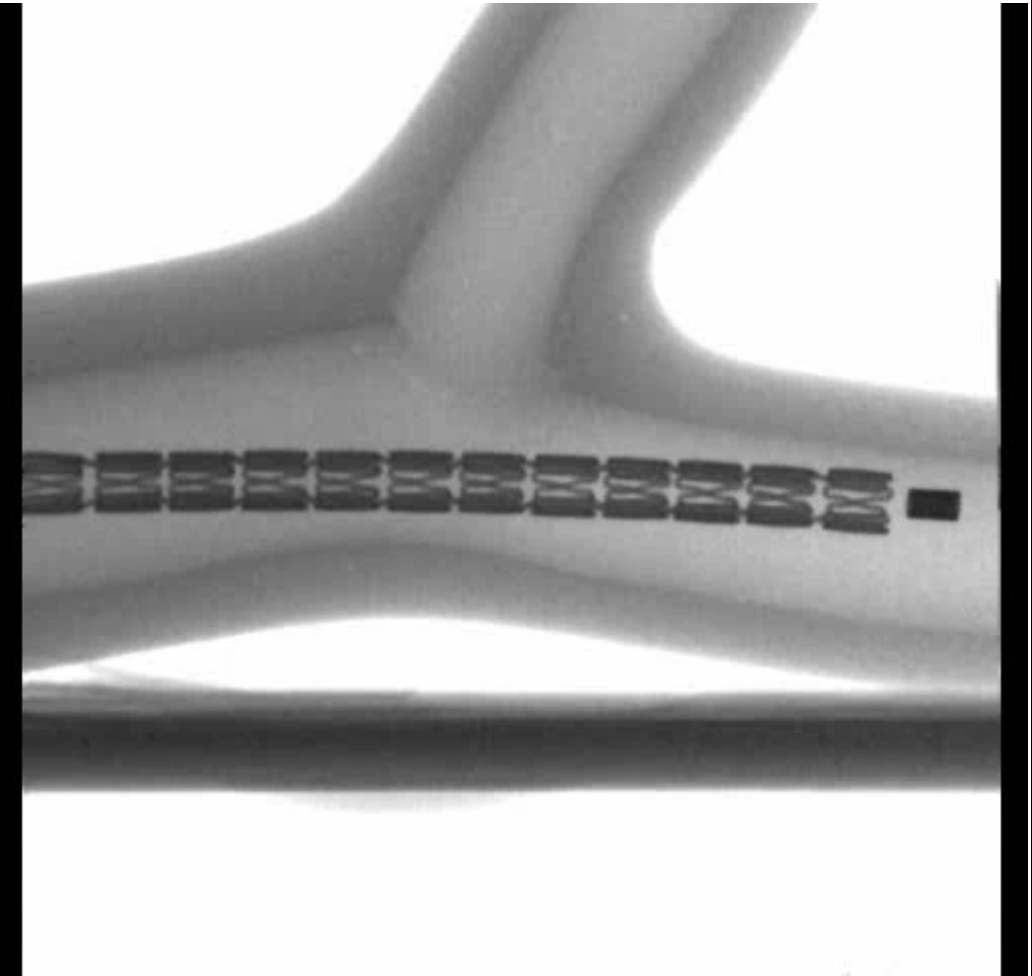
Producteur associé : MICHEL FALHE, PHILIPPE GAUTHER, ANDRÉ LAZARE, PATRICK LANGLOIS  
Producteur délégué : Claude Féraud, JACQUES PERRIN, CHRISTOPHE PARRAUD, RYVETI MALLEL  
Productrice associée : JEAN-MARIE HENRIKSON

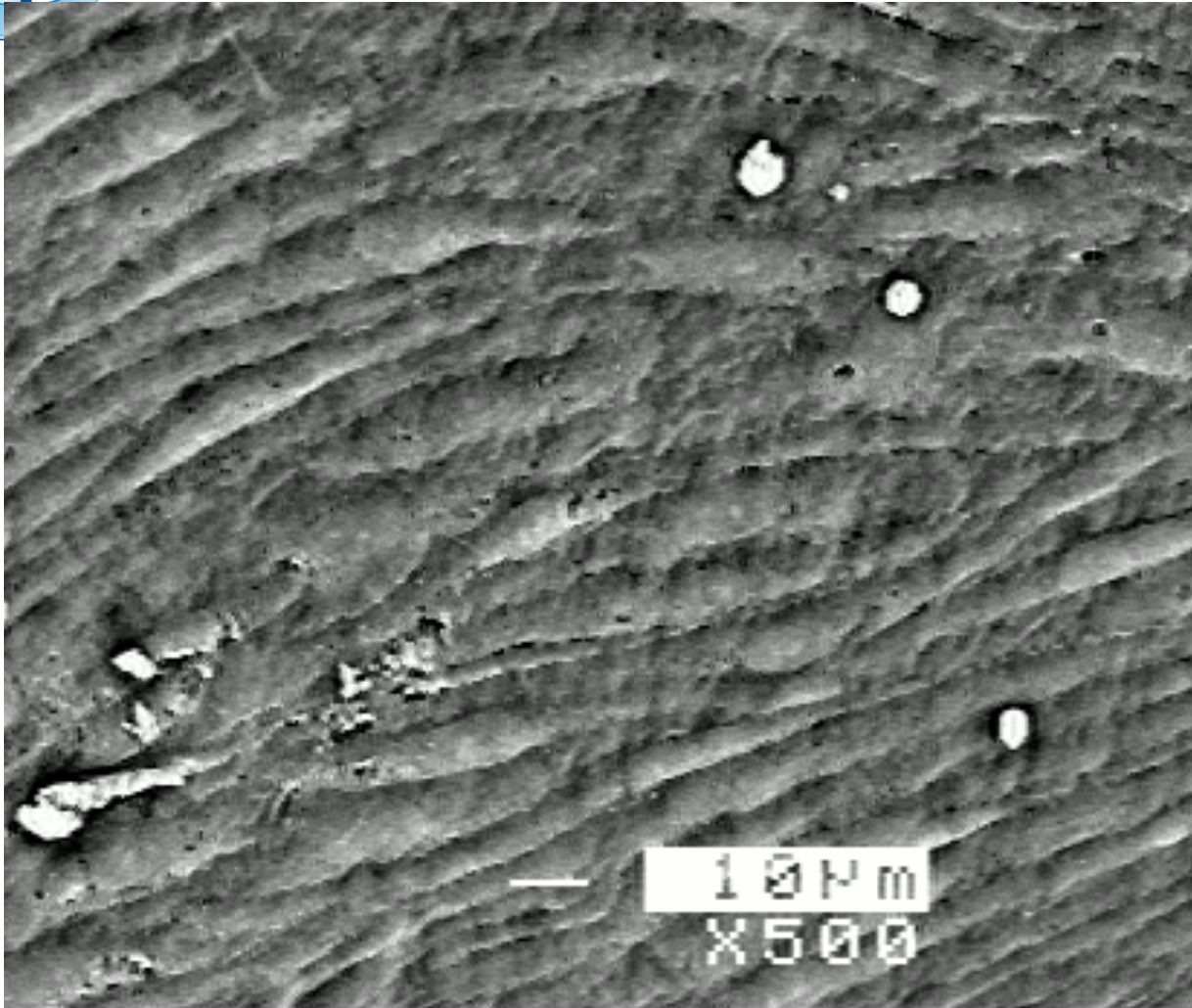
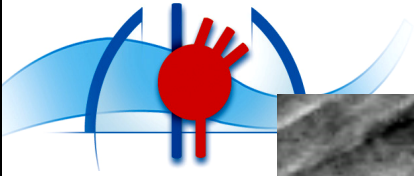


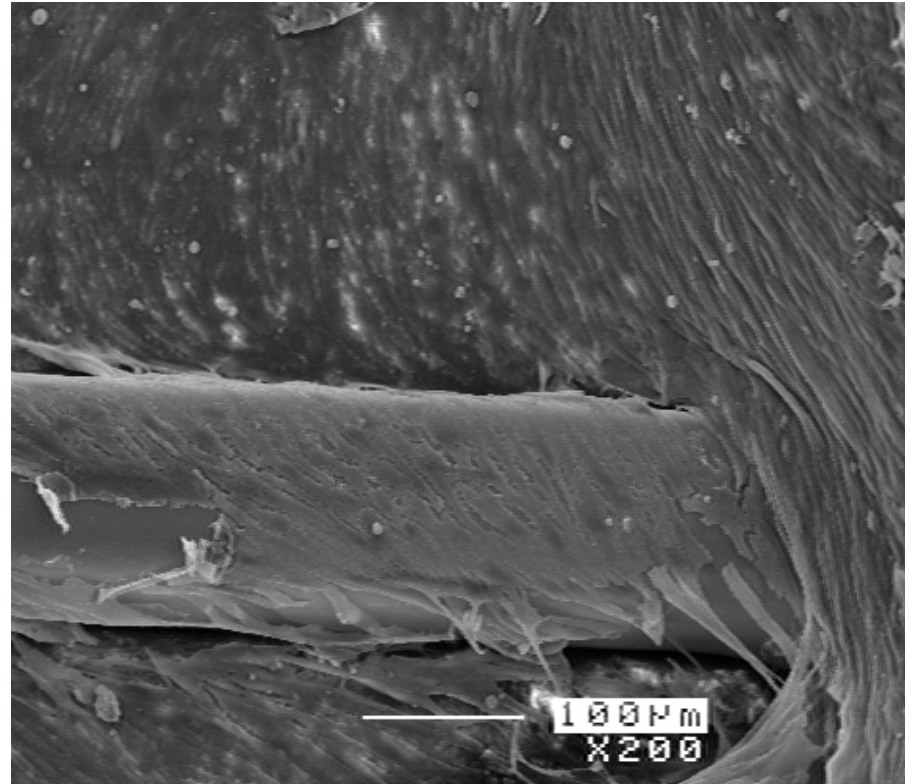
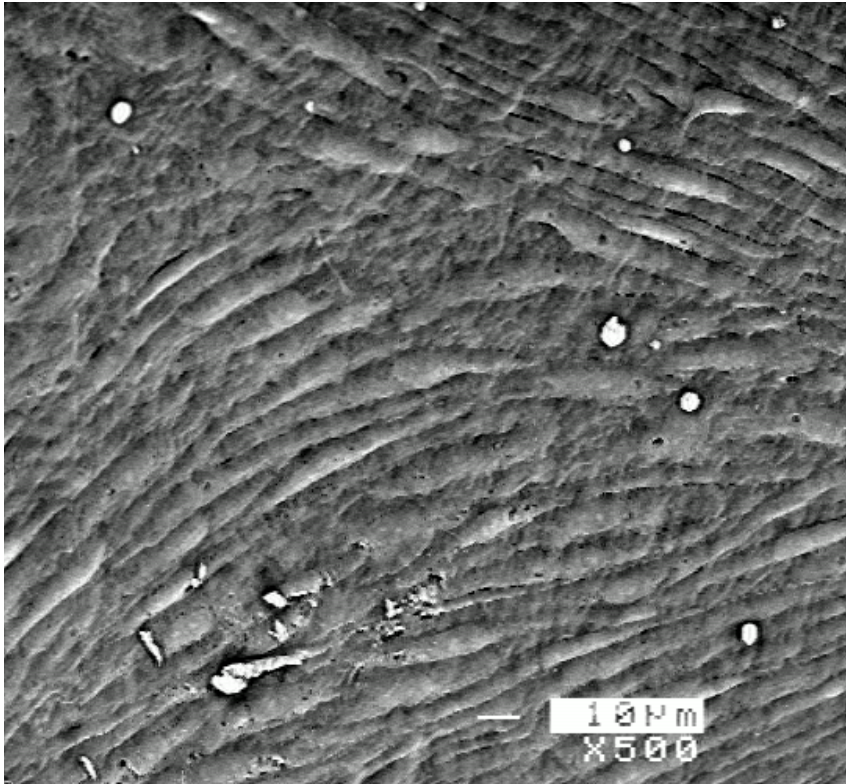
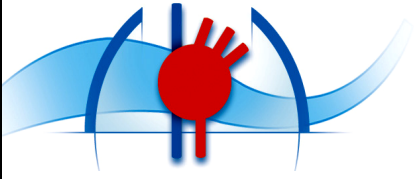


# Le laboratoire d'analyse

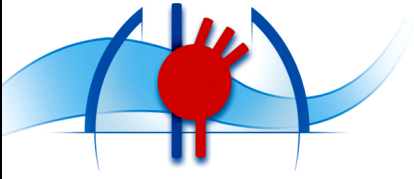
- Banc d'essai :
  - Caméra
  - Loupe binoculaire
  - Microscope
  - Microscopie électronique
  - Microscanner
- Analyse in-vivo
  - Rats
  - Lapins
  - Porcs





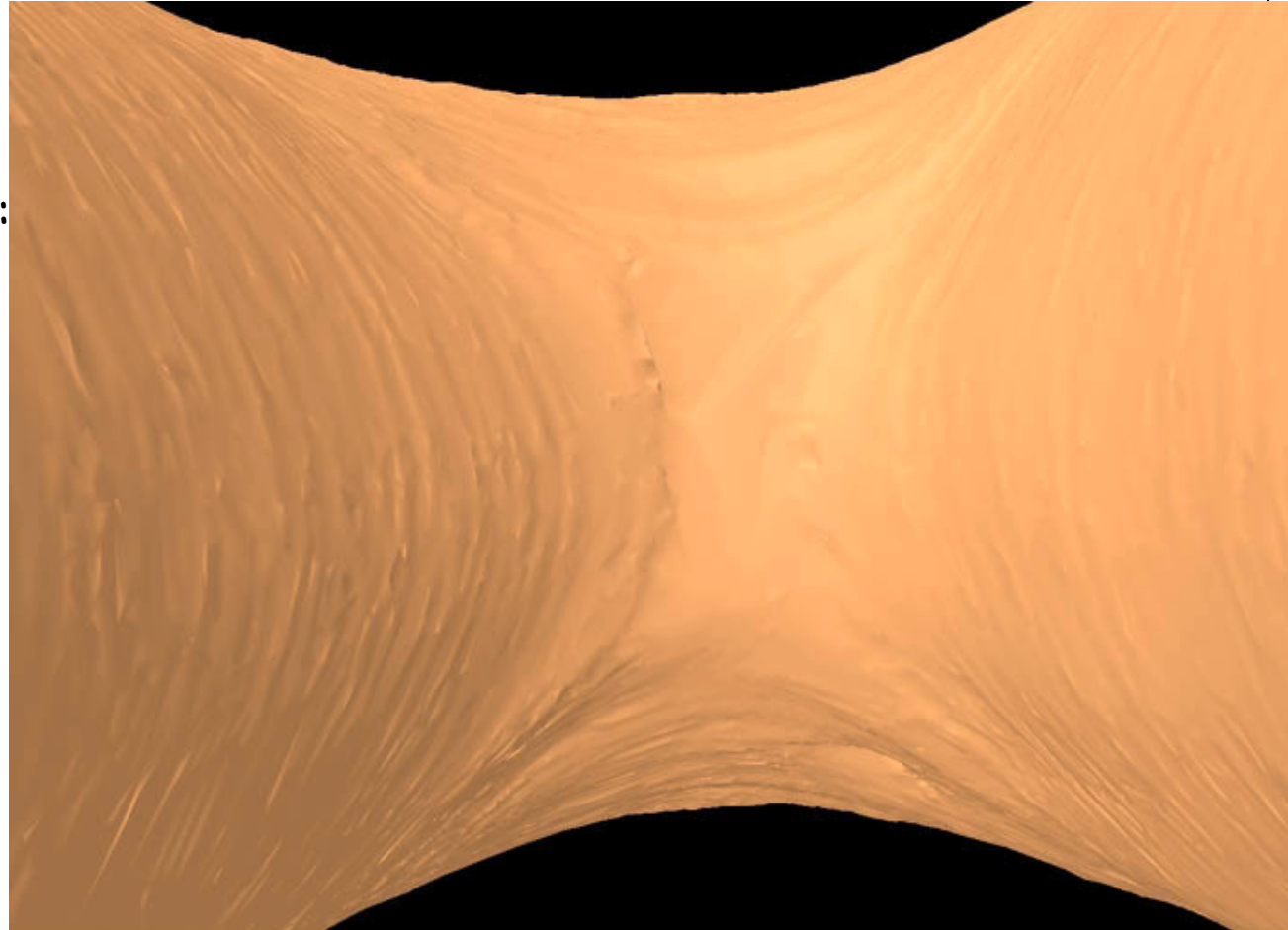


Néo endothélialisation sur un BMS




# Les stents

- Type de fabrication :
  - Tubulaires
  - Modulaires
  - Filaires
- Types de mailles
  - Ouvertes
  - Fermées



# Objectifs



**Etablir un protocole de choix du dispositif** qui semble le plus adapté à chaque situation et à chaque technique d'angioplastie

Lau, K. W., *SINGAPORE MEDICAL JOURNAL*. (2004). Briguori, C. *Am. Coll. Cardiol.* (2002).

**Répondre à un besoin** des cardiologues interventionnels exprimée par le GACI

**Développer un protocole d'évaluation objective, standardisée, en banc d'essai,** des caractéristiques biomécaniques de **l'ensemble** des stents

**Multitude** des dispositifs disponibles

**Améliorer la sécurité** des patients

# Résultats attendus

**Différences significatives** sur :

- caractéristiques biomécaniques
- résistance aux manœuvres d'angioplastie
- qualité du déploiement en bifurcation

selon le type de stent et le mode de déploiement.

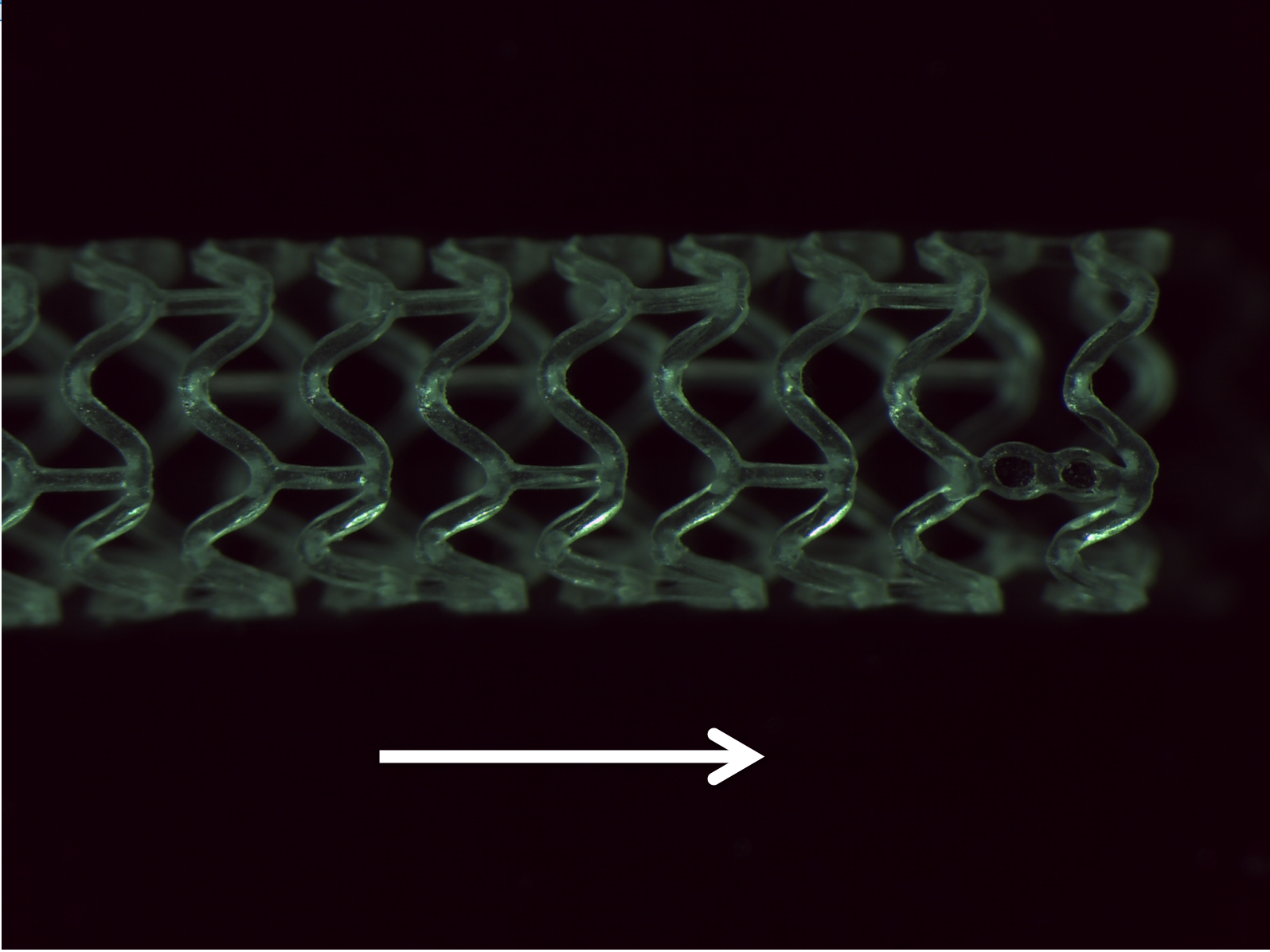
Amélioration des résultats de l'angioplastie

Choix du dispositif le plus adapté

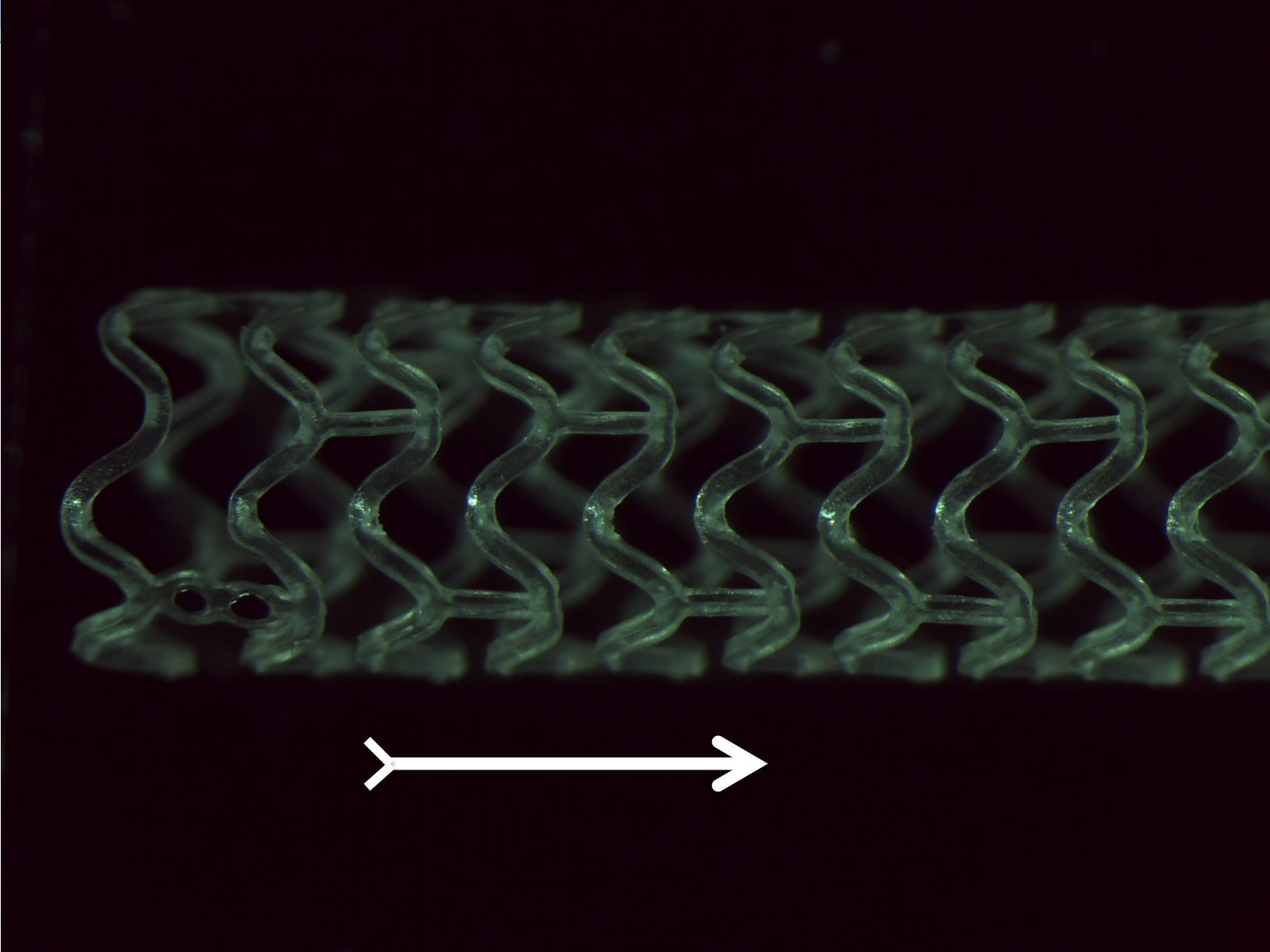
Barragan, P. *Catheter Cardiovasc Interv.* (2000)  
Ormiston, J. A. *JACC Cardiovasc Interv.* (2011)  
Ormiston, J. A. *JACC Cardiovasc Interv.* (2008)



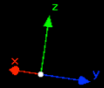
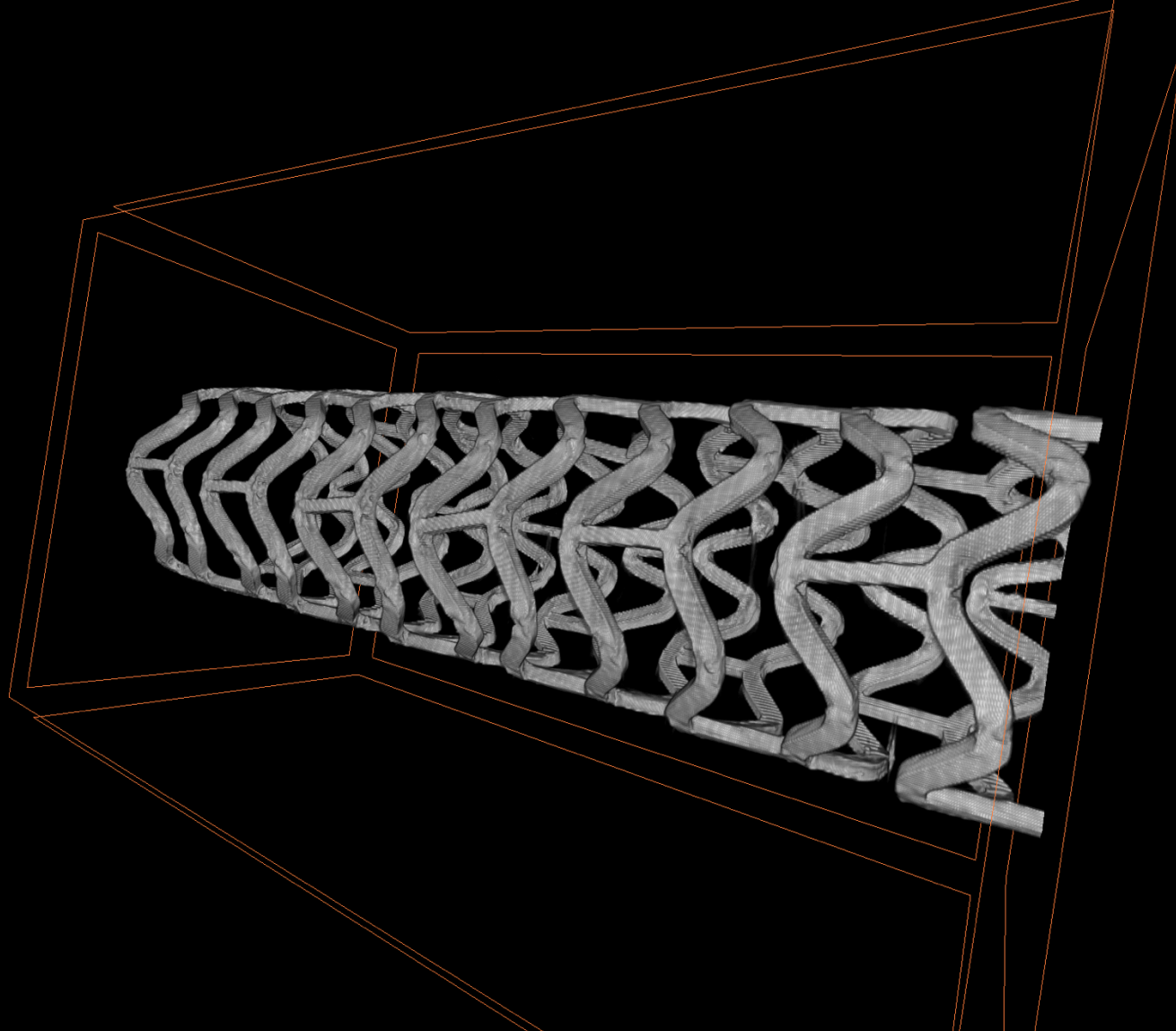
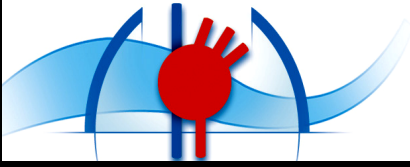
# Le stent ABSORB

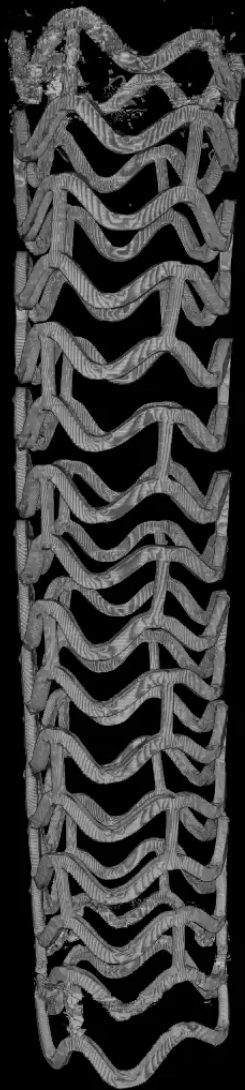


# Le stent ABSORB

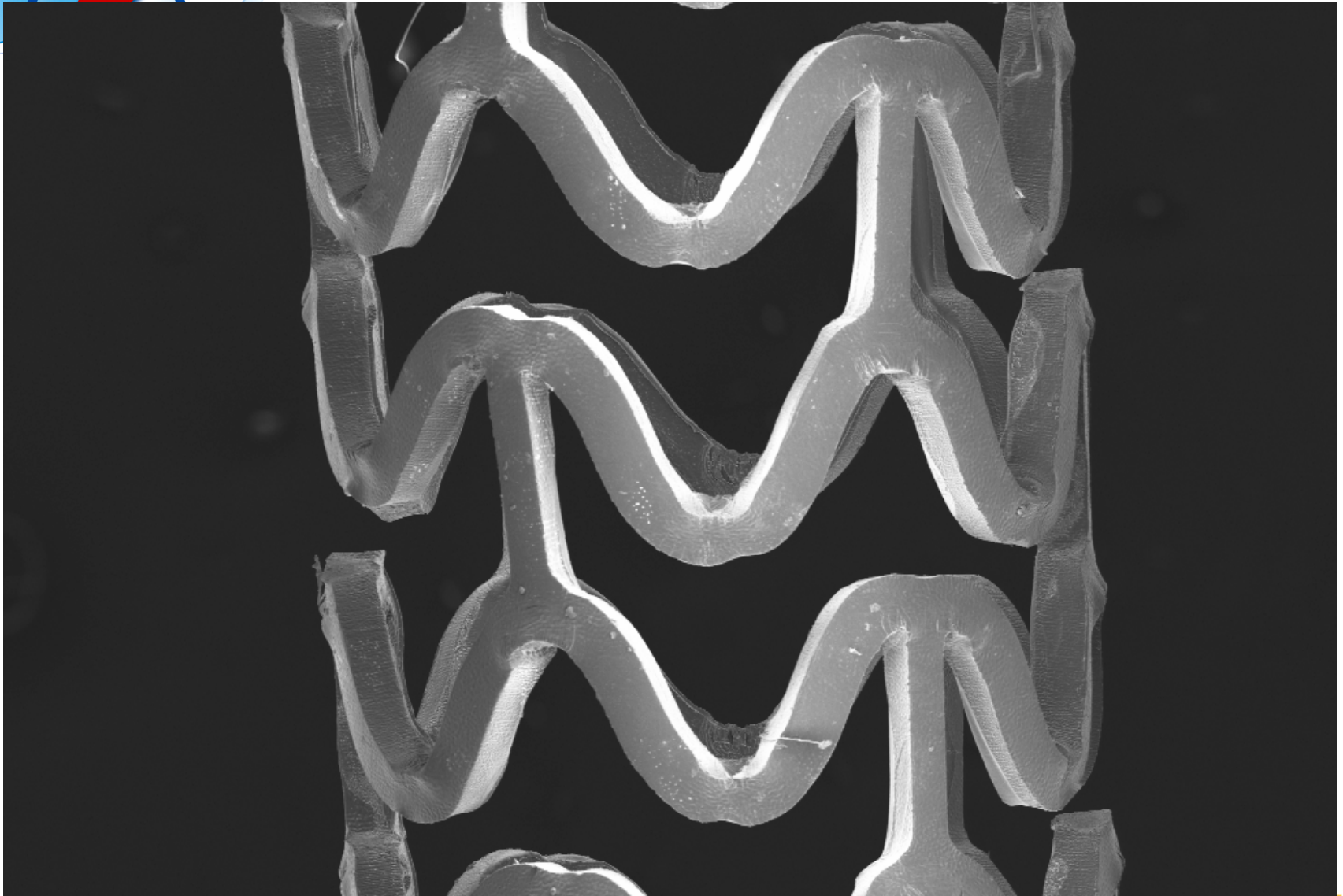



# Le stent ABSORB (micro CT)





# Le stent ABSORB (MEB)



200  $\mu$ m  


Grand. = 25 X

Signal A = SE1

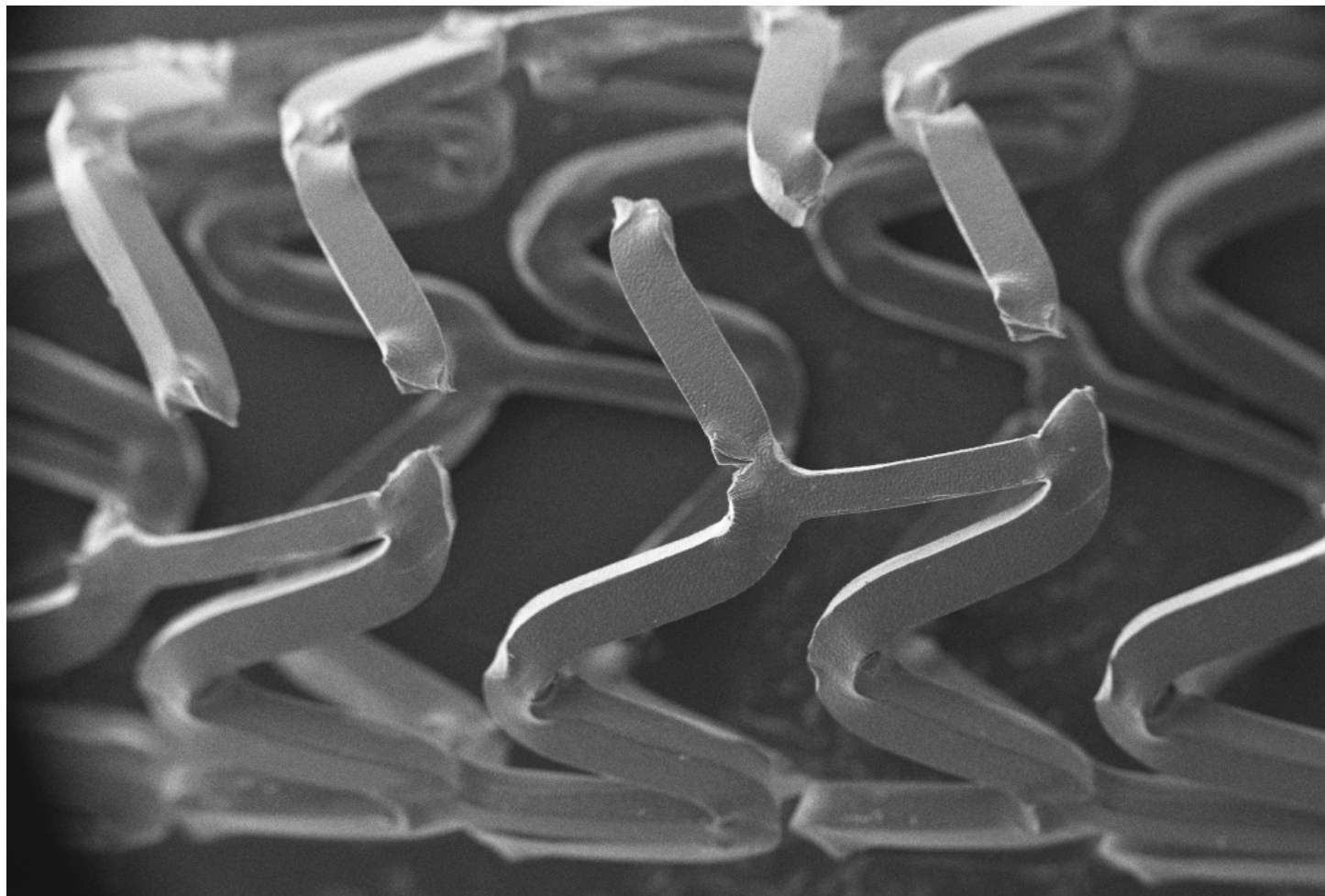
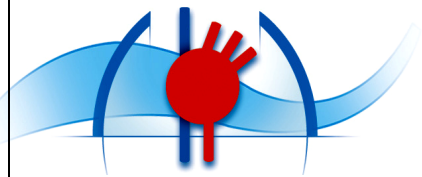
EHT = 7.00 kV


Date : 11 Mai 2016





# Le stent ABSORB (MEB)



200  $\mu$ m  


Grand. = 25 X

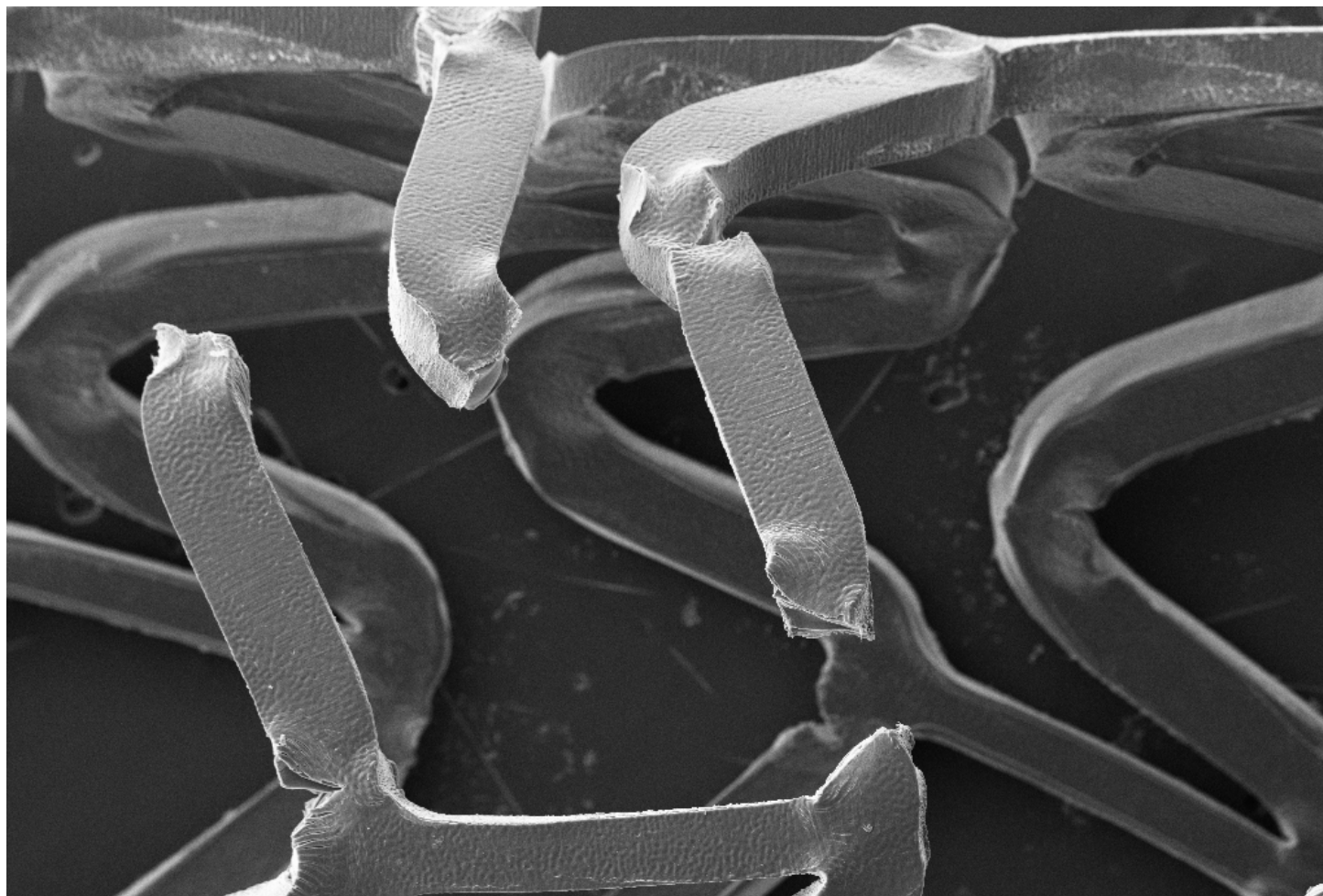
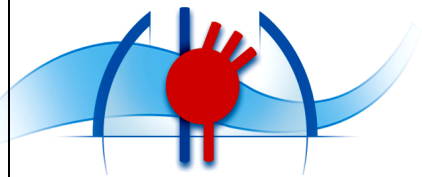
Signal A = SE1

EHT = 15.00 kV

Date :25 Sep 2014

sc3m

# Le stent ABSORB (MEB)



200  $\mu\text{m}$

Grand. = 41 X

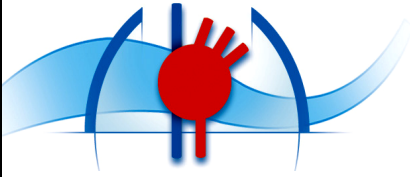
Signal A = SE1

EHT = 15.00 kV

Date :25 Sep 2014

sc3m

# Le stent ABSORB

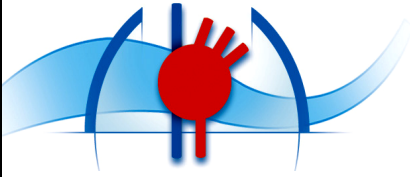


- Conditions expérimentales :
  - Respect de la chaîne du froid
  - Sérum physiologique 37°
  - Moins de 10 secondes
  - Inflation complète d'emblé
  - Pas de paliers d'inflation
  - Stents > 3.0 mm
- Non respect des instructions d'utilisation
- Respectez les instructions ++++



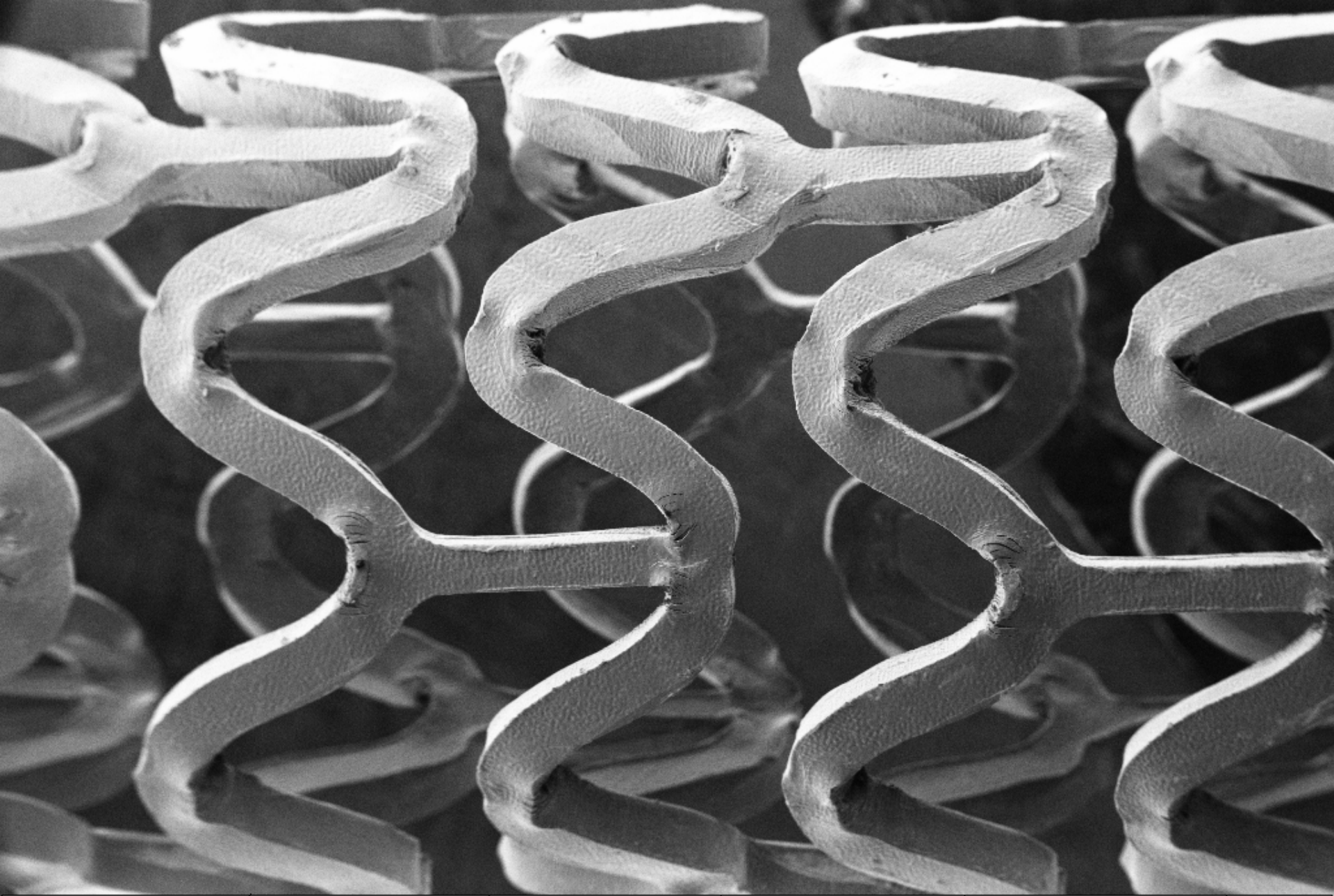


# Le stent ABSORB



- Conditions d'expansion :
  - Éléments importants à prendre en compte :
    - Respect des paliers (instructions for use)
    - Respect du temps de contact avec le sang à 37°
    - Keep calm and take your time





200  $\mu\text{m}$



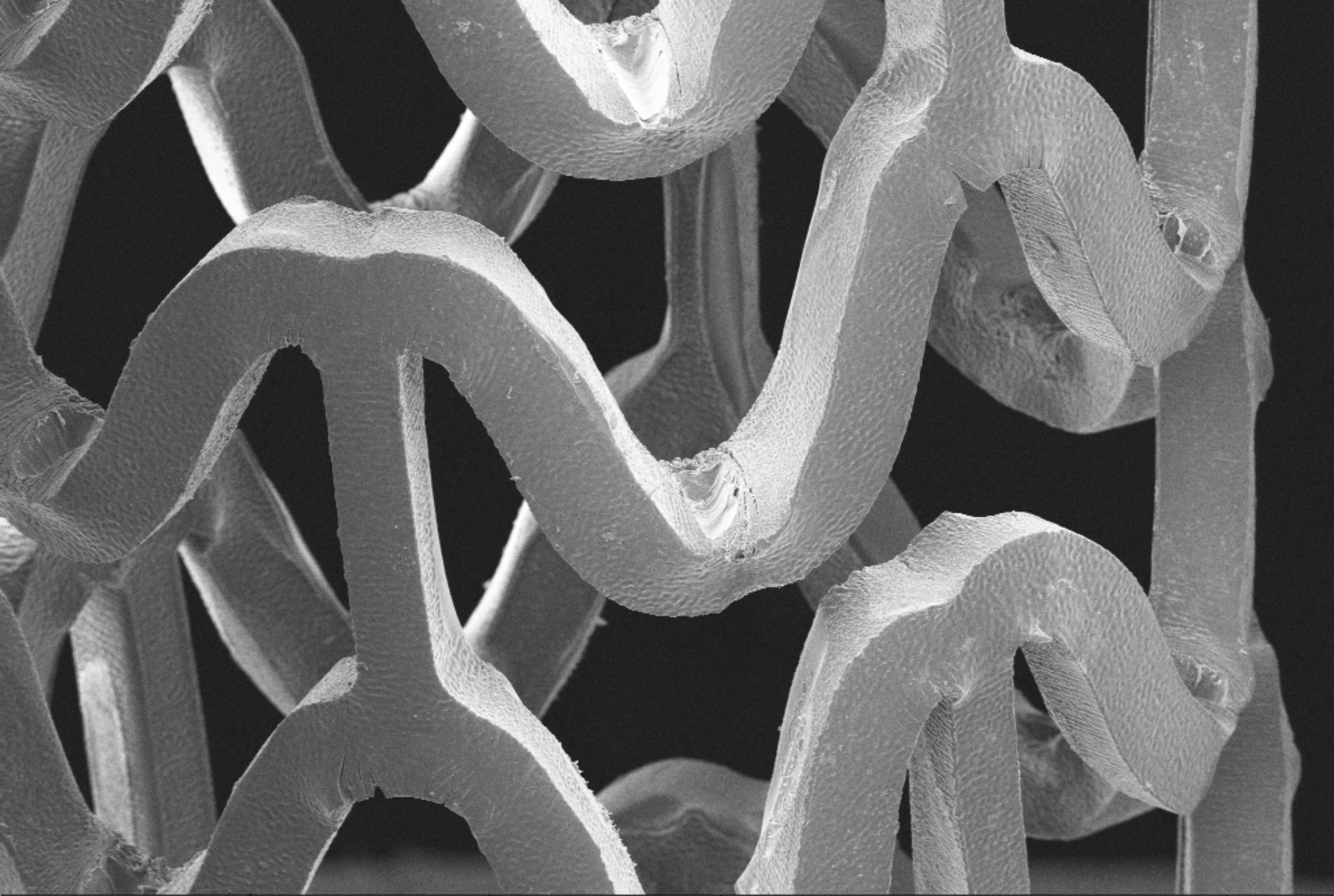
Grand. = 30 X

Signal A = SE1

EHT = 3.00 kV

Date : 12 Mai 2016

*sc3m*



100  $\mu\text{m}$



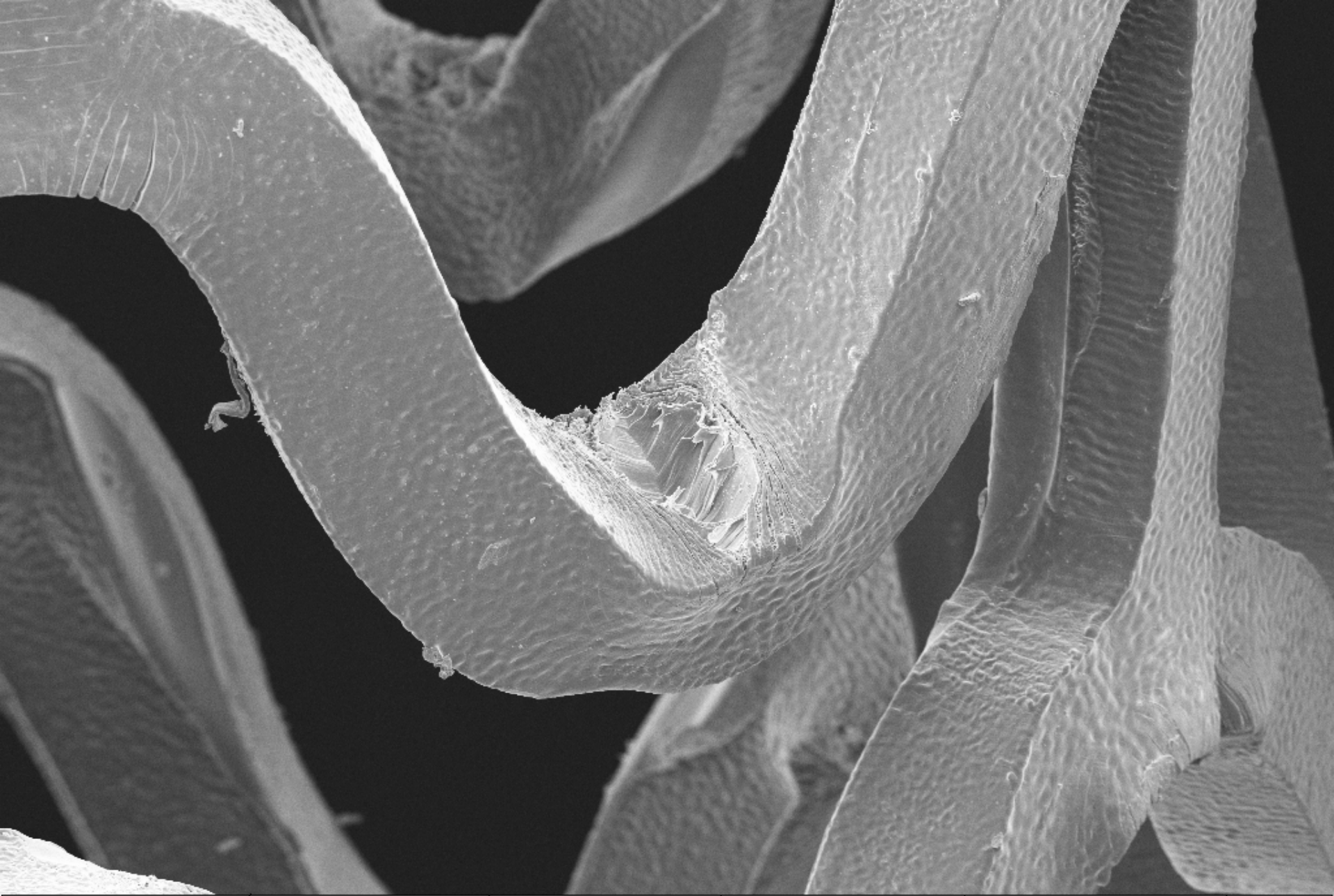
Grand. = 50 X

Signal A = SE1

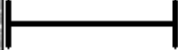
EHT = 7.00 kV

Date : 11 Mai 2016

*sc3m*



100  $\mu\text{m}$



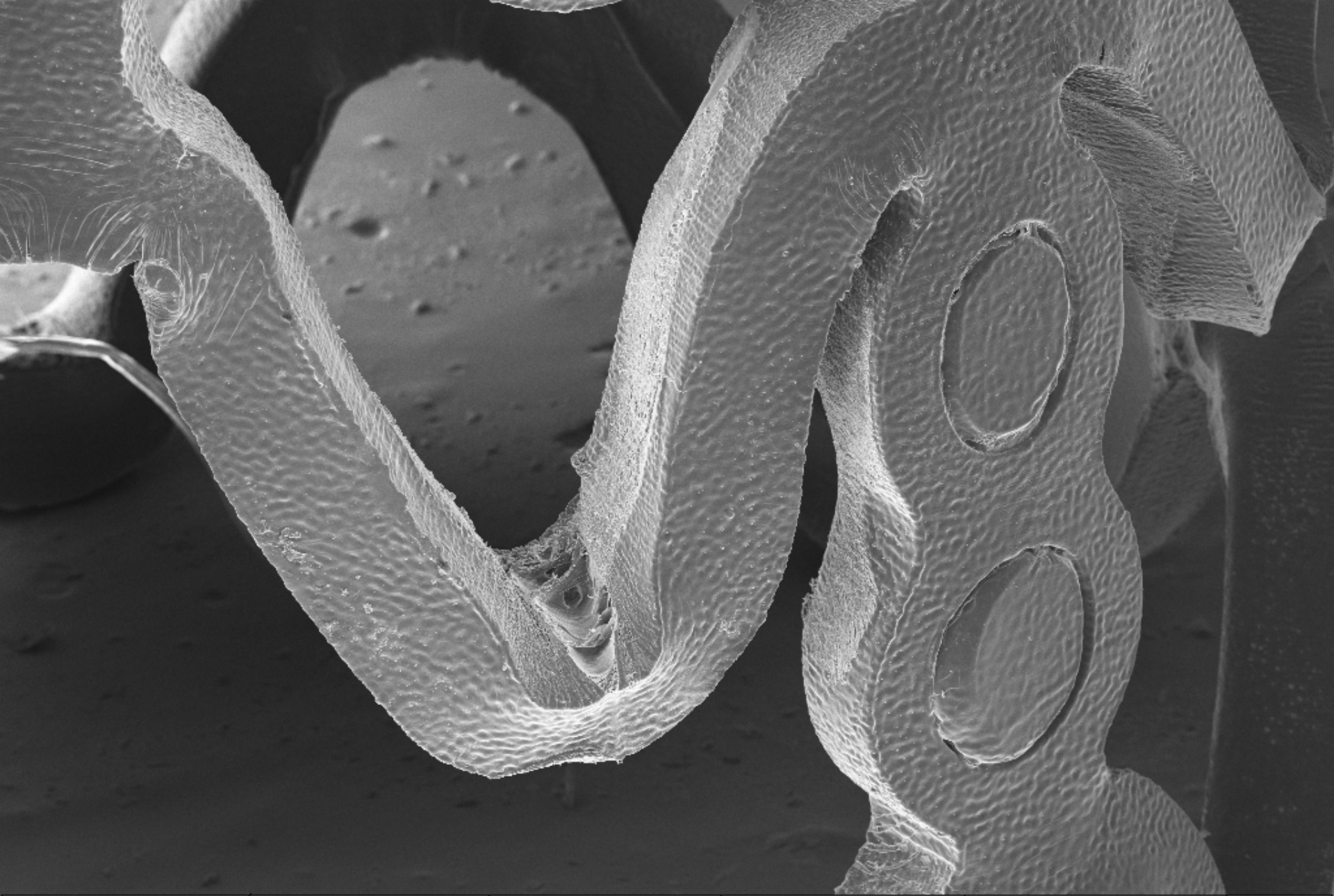
Grand. = 100 X

Signal A = SE1

EHT = 7.00 kV

Date : 11 Mai 2016

*sc3m*



100  $\mu\text{m}$



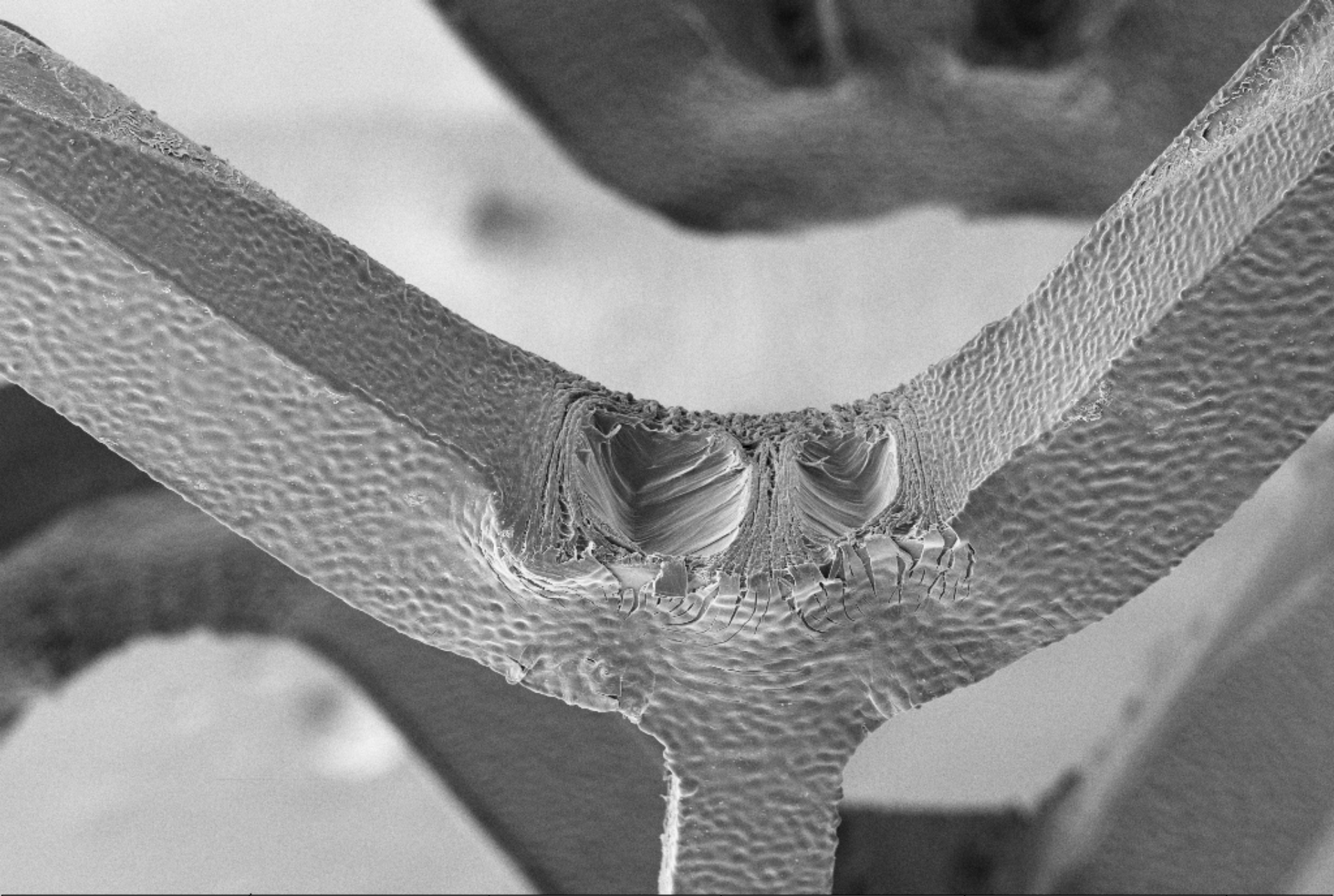
Grand. = 75 X

Signal A = SE1

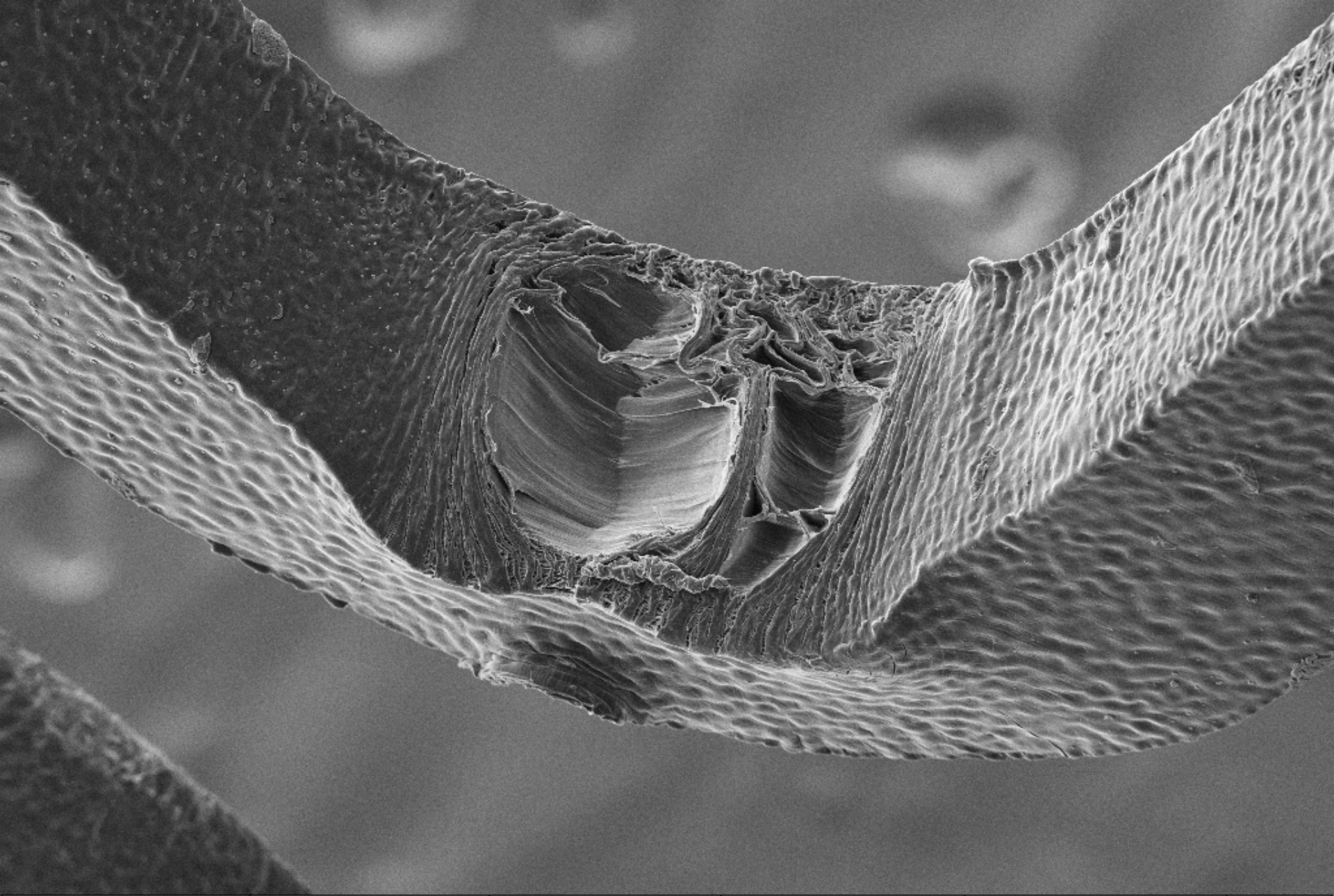
EHT = 7.00 kV

Date : 11 Mai 2016

*sc3m*



100 $\mu\text{m}$ 	Grand. = 100 X	Signal A = SE1	EHT = 7.00 kV	Date : 11 Mai 2016	
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100  $\mu$ m

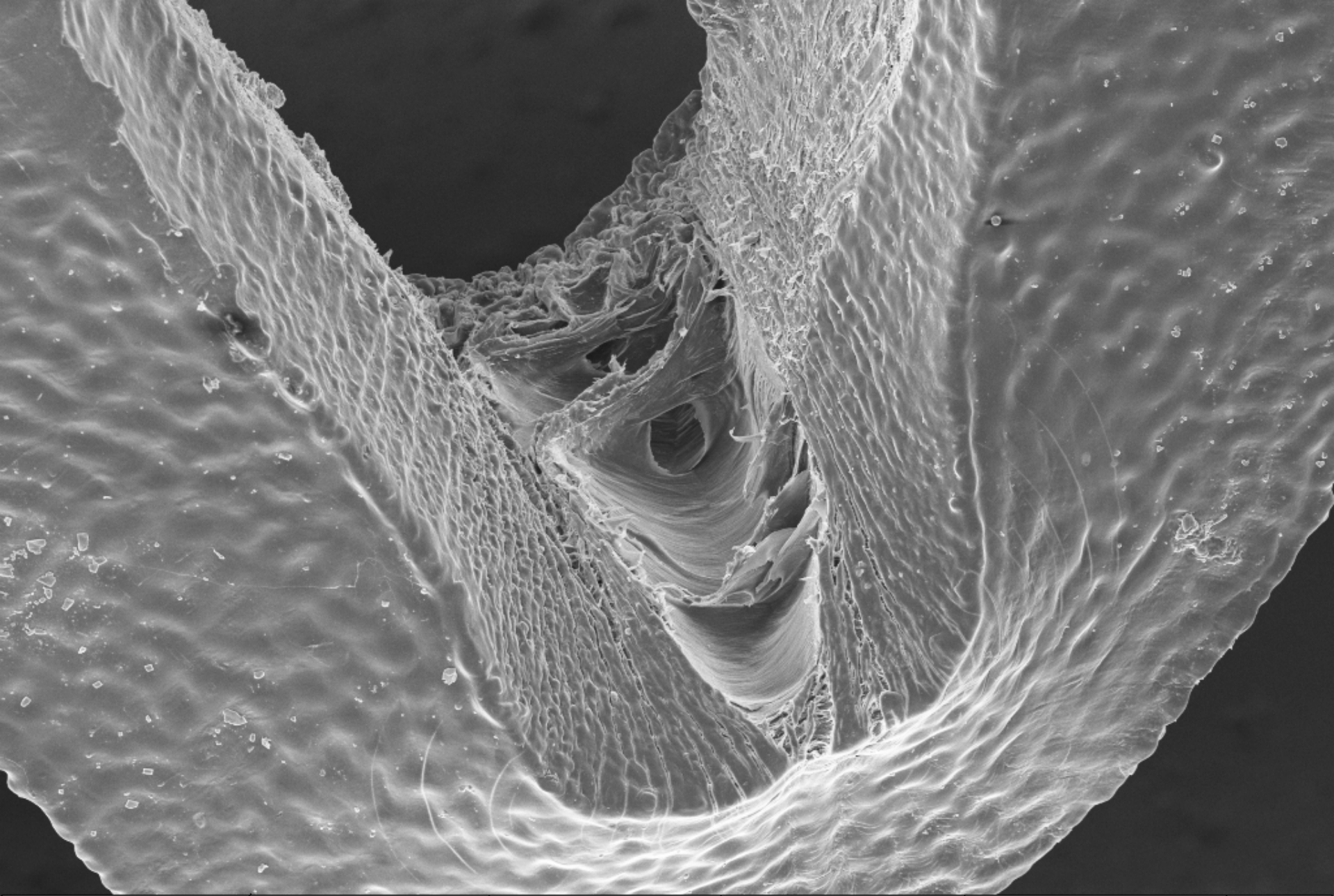
Grand. = 150 X

Signal A = SE1

EHT = 7.00 kV

Date : 10 Mai 2016

*sc3m*



20  $\mu\text{m}$



Grand. = 250 X

Signal A = SE1

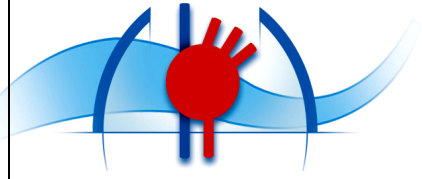
EHT = 7.00 kV

Date : 11 Mai 2016

*sc3m*

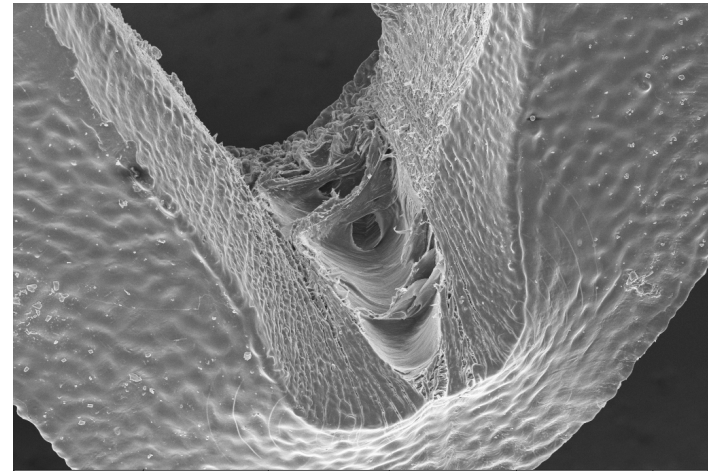
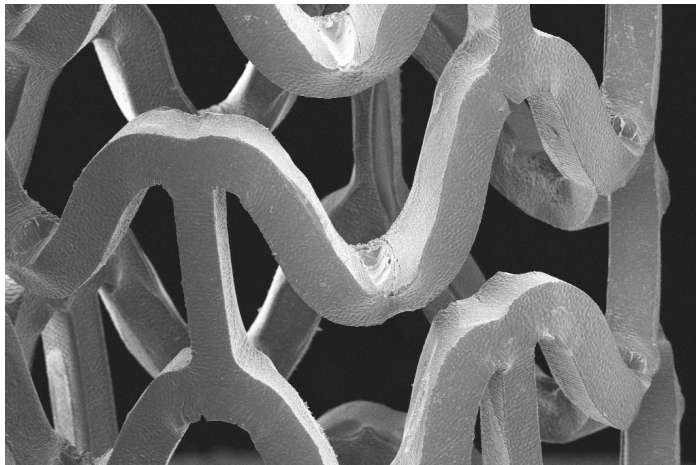


# BVS et lésions droites



## Conclusions

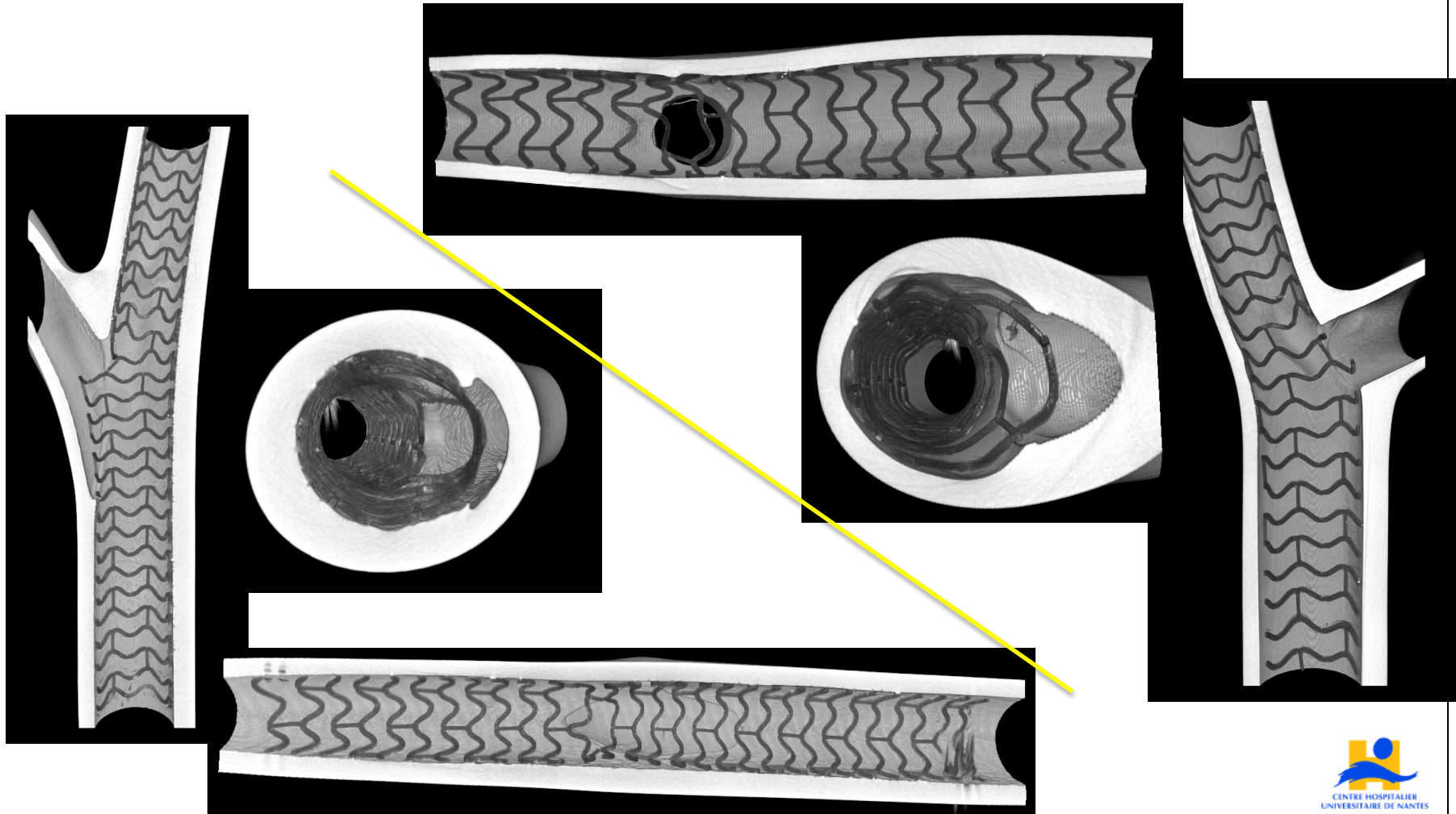
- Respectez les « instructions for use »
- Temps de contact probablement aussi important que les paliers de déploiement
- Signification des microfractures articulaires ?



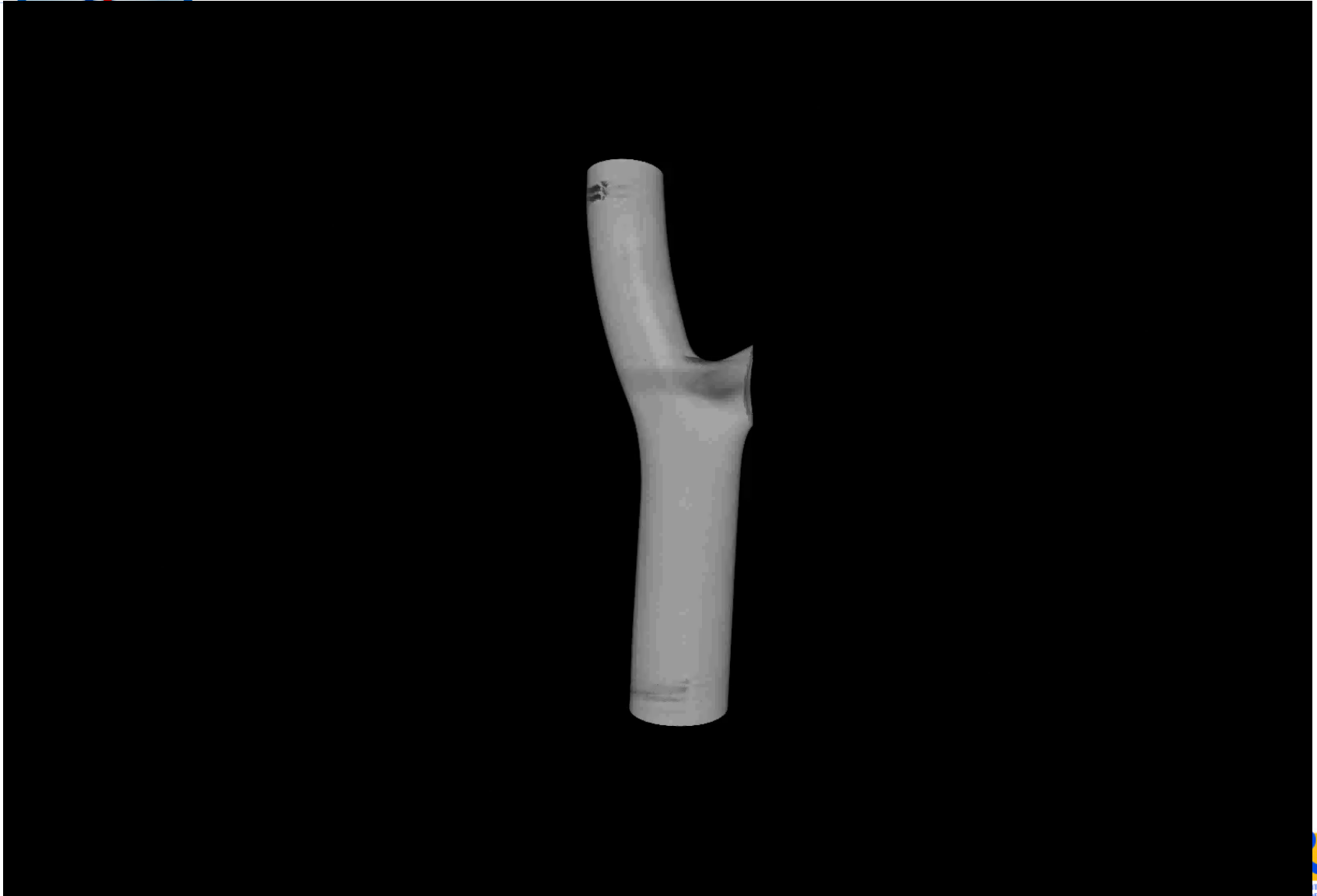
# PKP (POT, Kissing, final POT)

Absorb

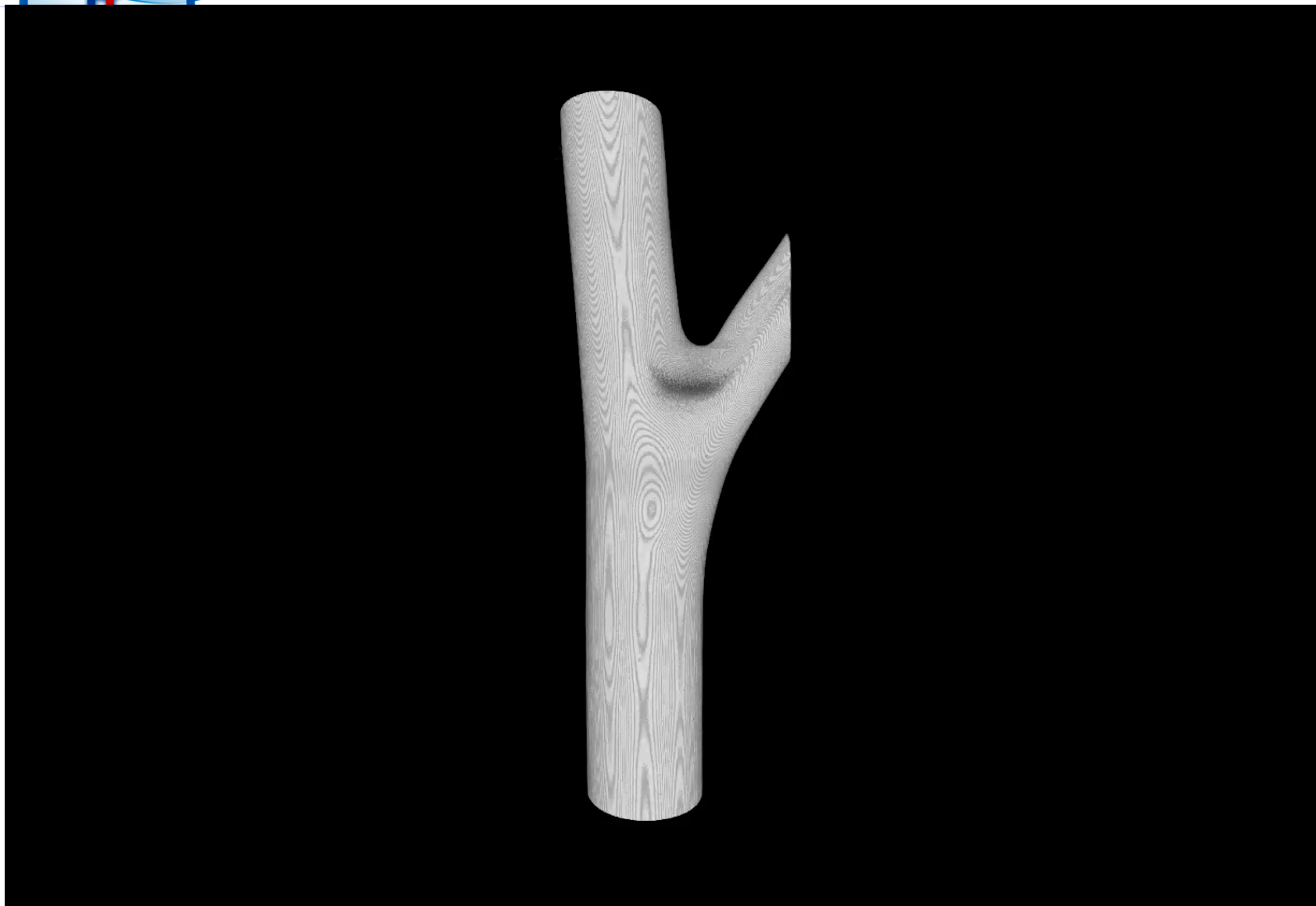
Final re



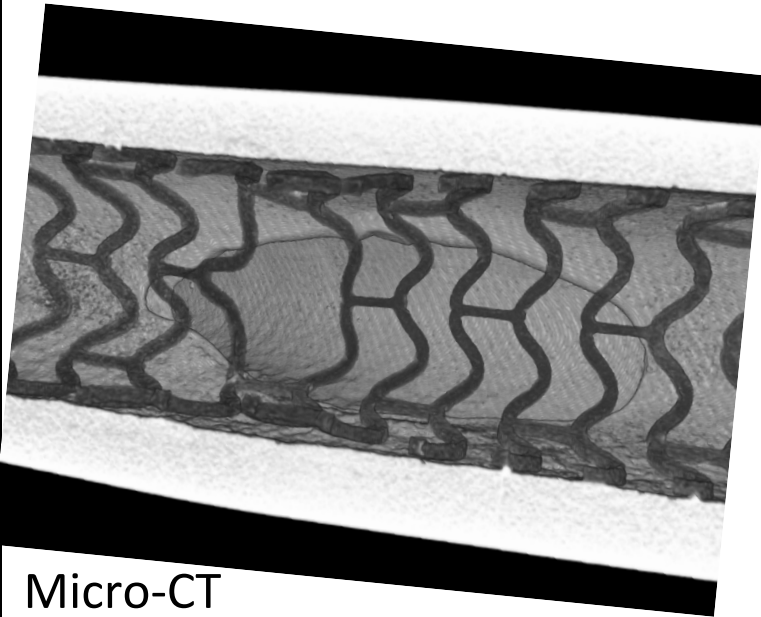
# Le stent ABSORB : kissing



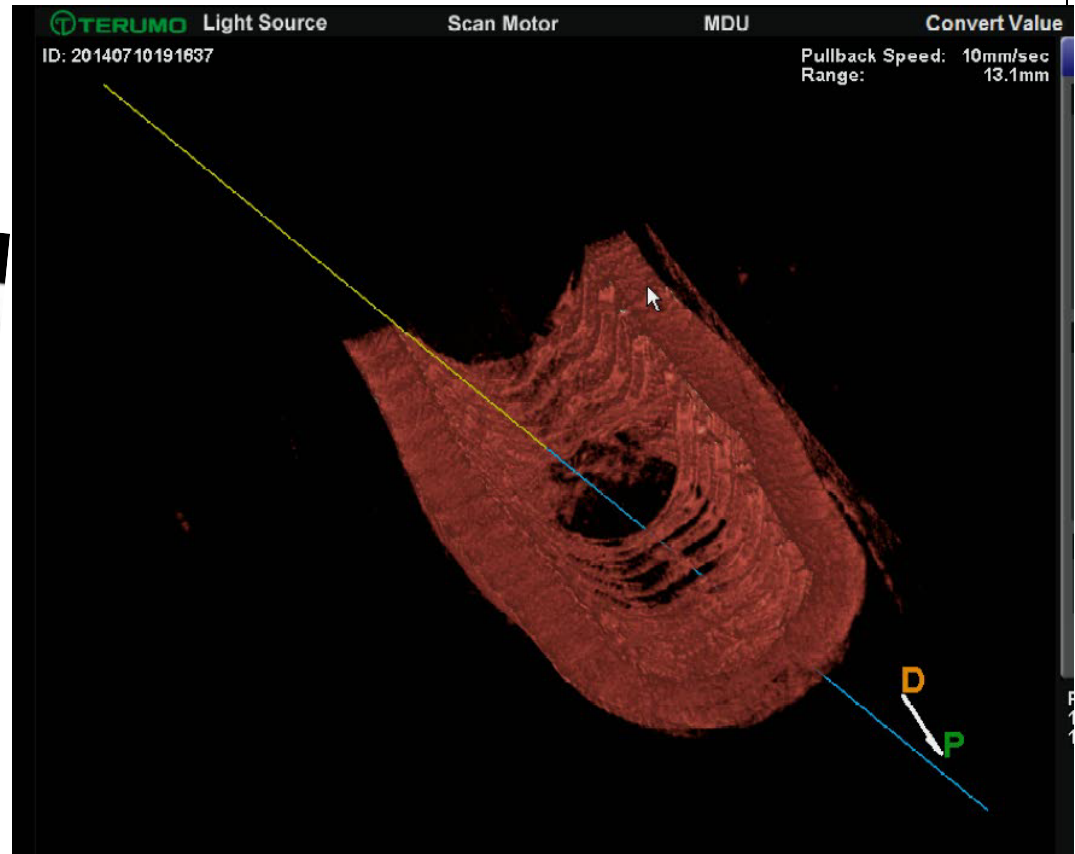
# Le stent ABSORB : PSP



Excellent correlation Micro-CT/OFDI



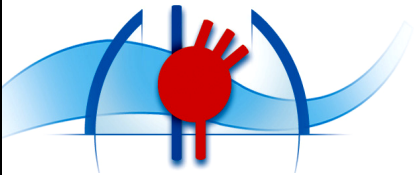
Micro-CT



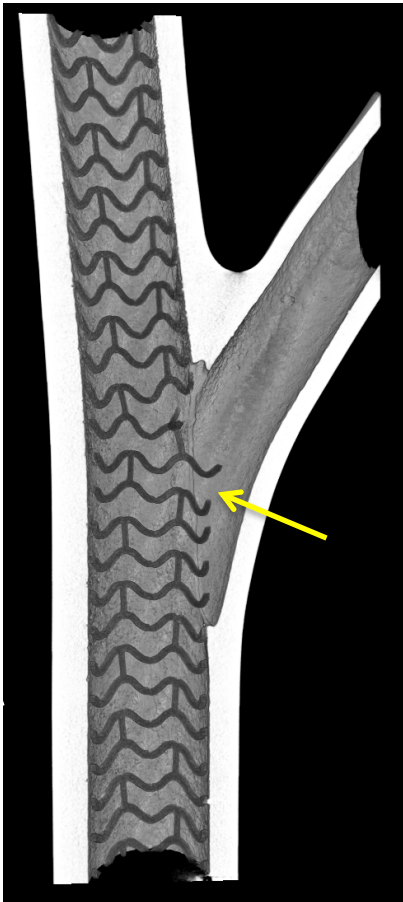
Courtesy Pascal Motreff

OFDI

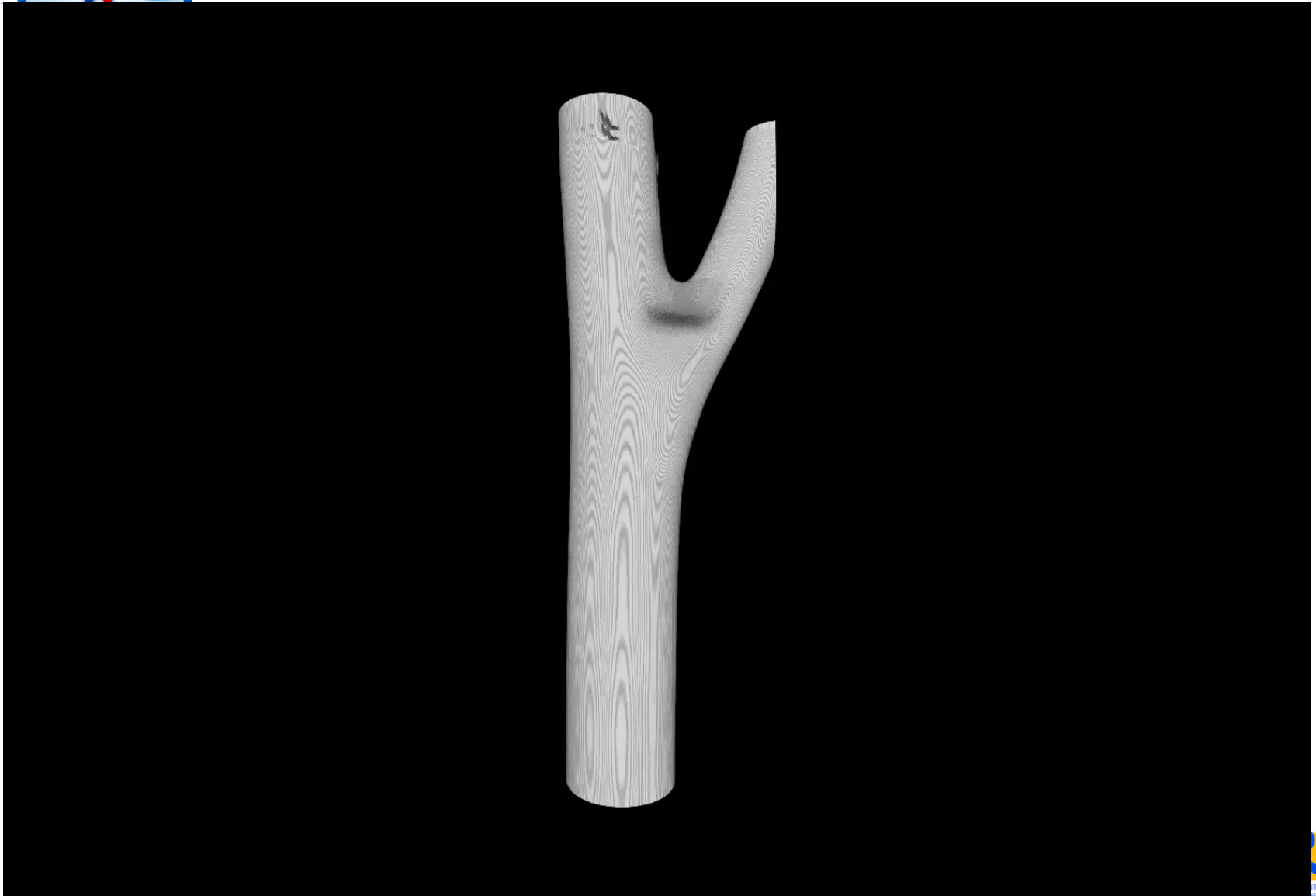




Mal apposition sur l'origine de la SB (élasticité)  
Dépendante de l'angulation ?  
Risque de rupture de maille

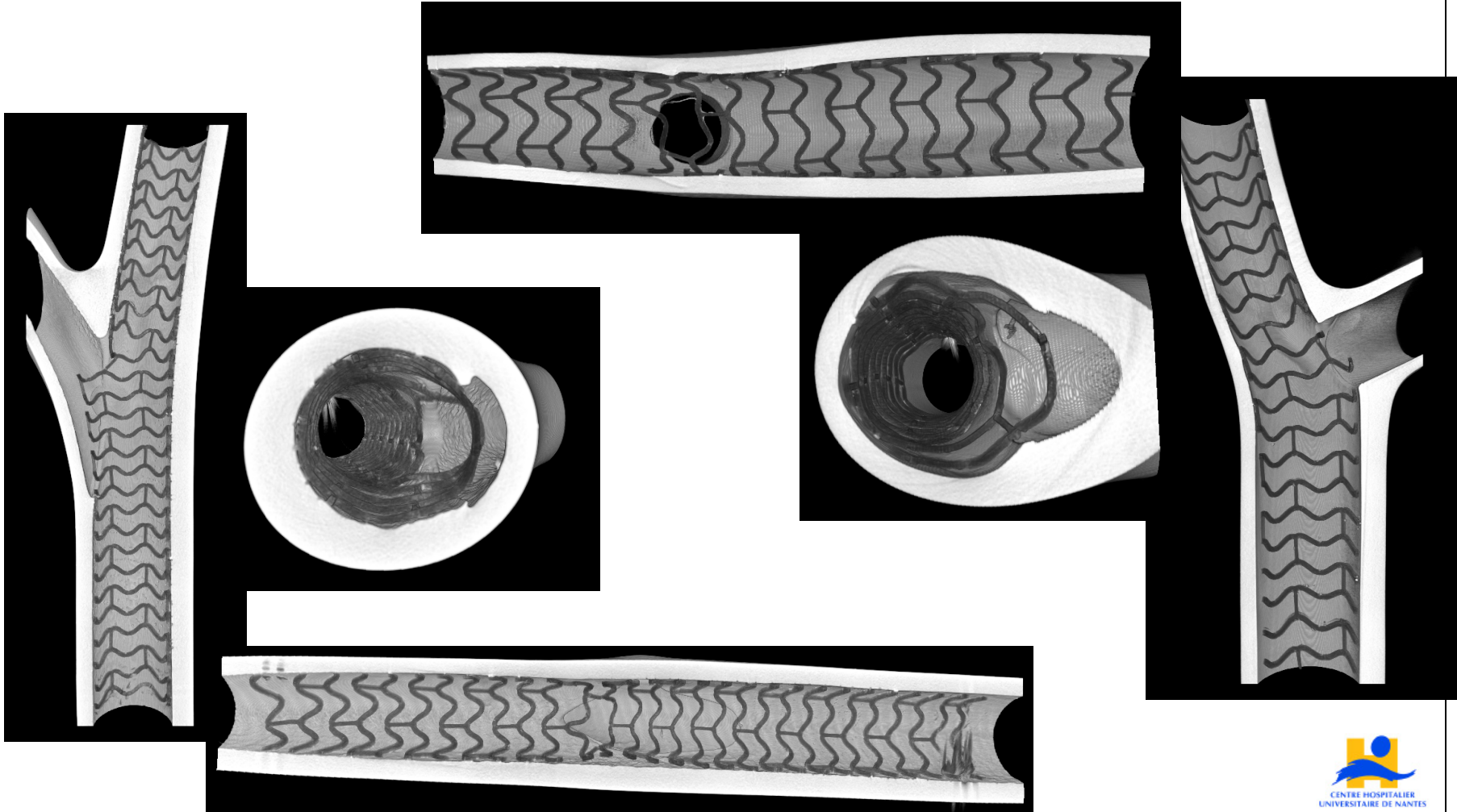


# Le stent ABSORB : PKP



## PKP (*POT, Kissing, final POT*)

- Résultats proches du PSP
- Résultats identiques sur la SB

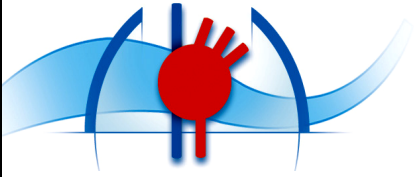




# Le stent ABSORB : culotte

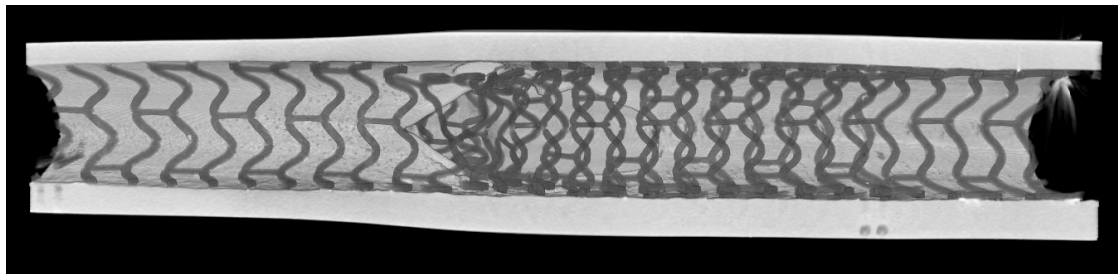
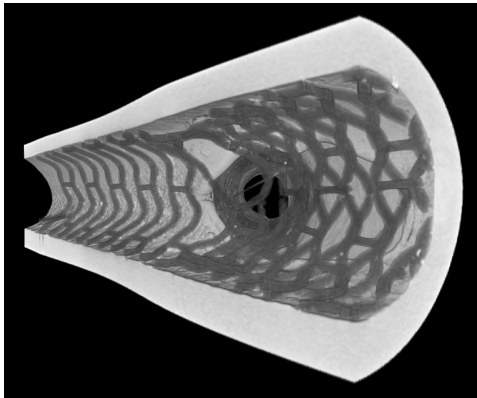


# Culotte

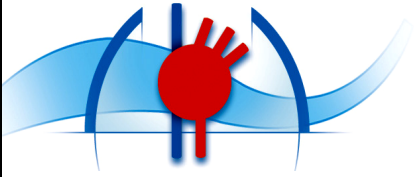


Obstruction de la lumière de SB

2 couches de mailles 157 microns

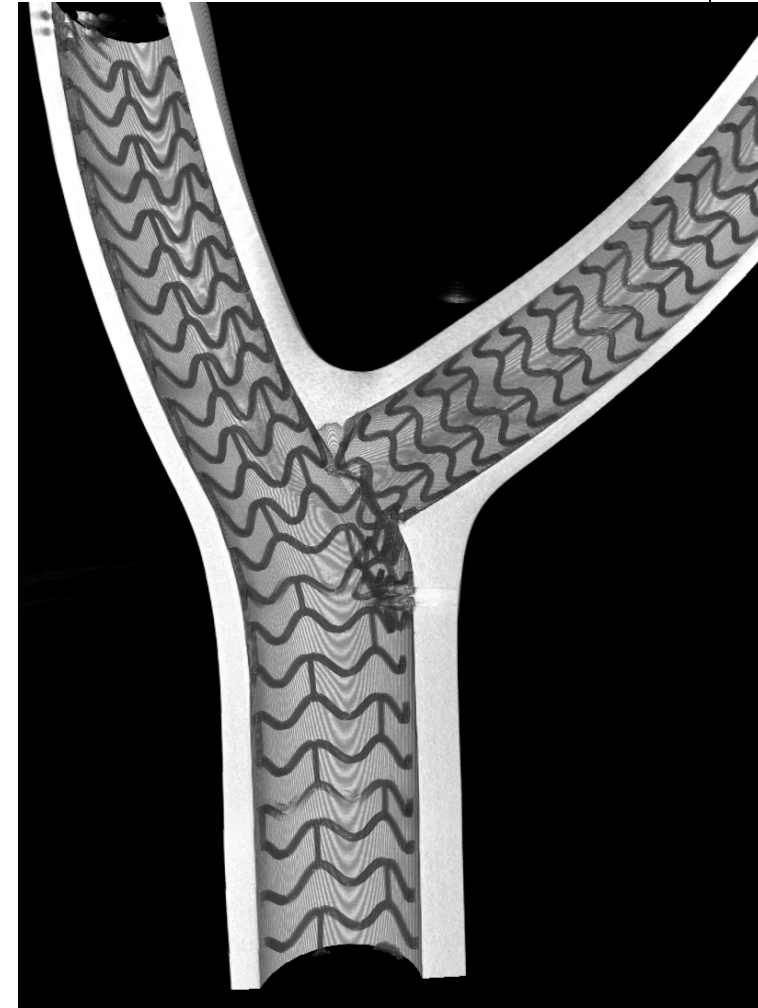
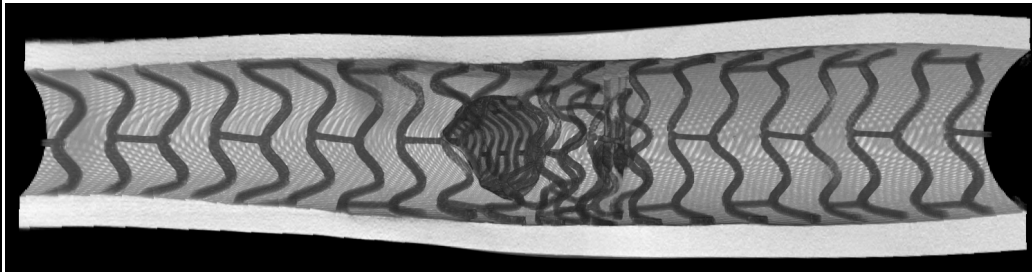


# Mini crush

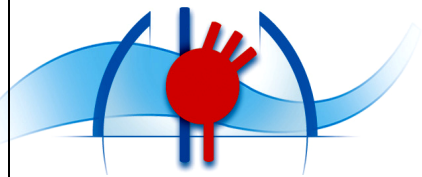


Obstruction de la lumière de SB

2 couches de mailles 157 microns

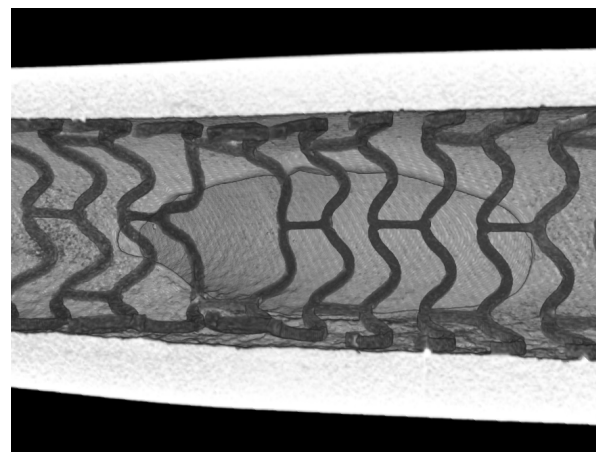
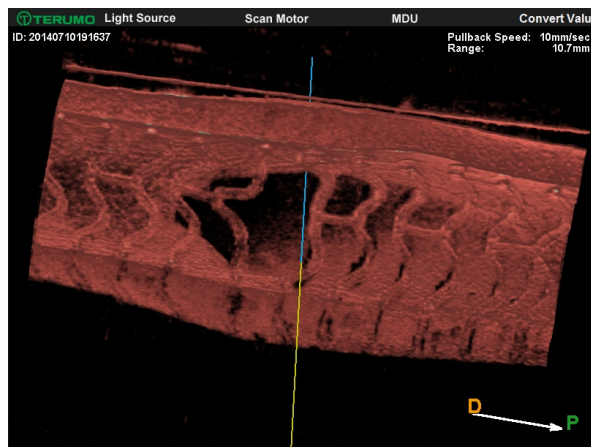


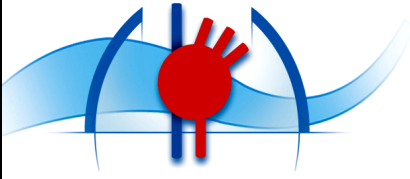
# BVS et Bifurcation



## Conclusions

- Bifurcation et BVS : possible mais prudence!!!
- Etudes sur bancs indispensables
- **In vitro : micro-CT**
- **In vivo : OCT**





**MERCI !**

<http://www.christoon.com>

