The Top 3 take-home messages from Bench and simulation parallel session

Gabriele Dubini

- How Coronary Bifurcation Shape affects Flow: Differences between LM and other bifurcation flow - **S. Beier/J. Ormiston**
- Flow after stenting at left main bifurcation - **K. Iwasaki**
- The effectiveness of three times kissing balloon dilatation method for left main bifurcation stenting - **Y. Hikichi**
- In vivo flow/shear stress simulation after implantation of BVS in coronary bifurcations - **Y. Li**
- Biomechanical effects of wrong positioning of the Tryton stent in a coronary bifurcation - **C. Chiastra**
- Hemodynamic impact of stent-vessel malapposition - **G. Dubini/G. Kassab**
- Local flow conditions following bifurcation stenting: Change in WSS - **J. Wentzel**
- Impact of Intramural stress on NIH in Bifurcation stenting - **G. Kassab**
- Mechanical and flow factors of in-stent hyperplasia - **Y. Chatzizisis**
- Some causes of failure to cross through the side of a stent with bifurcation stenting. A bench and clinical study - **J. Ormiston**

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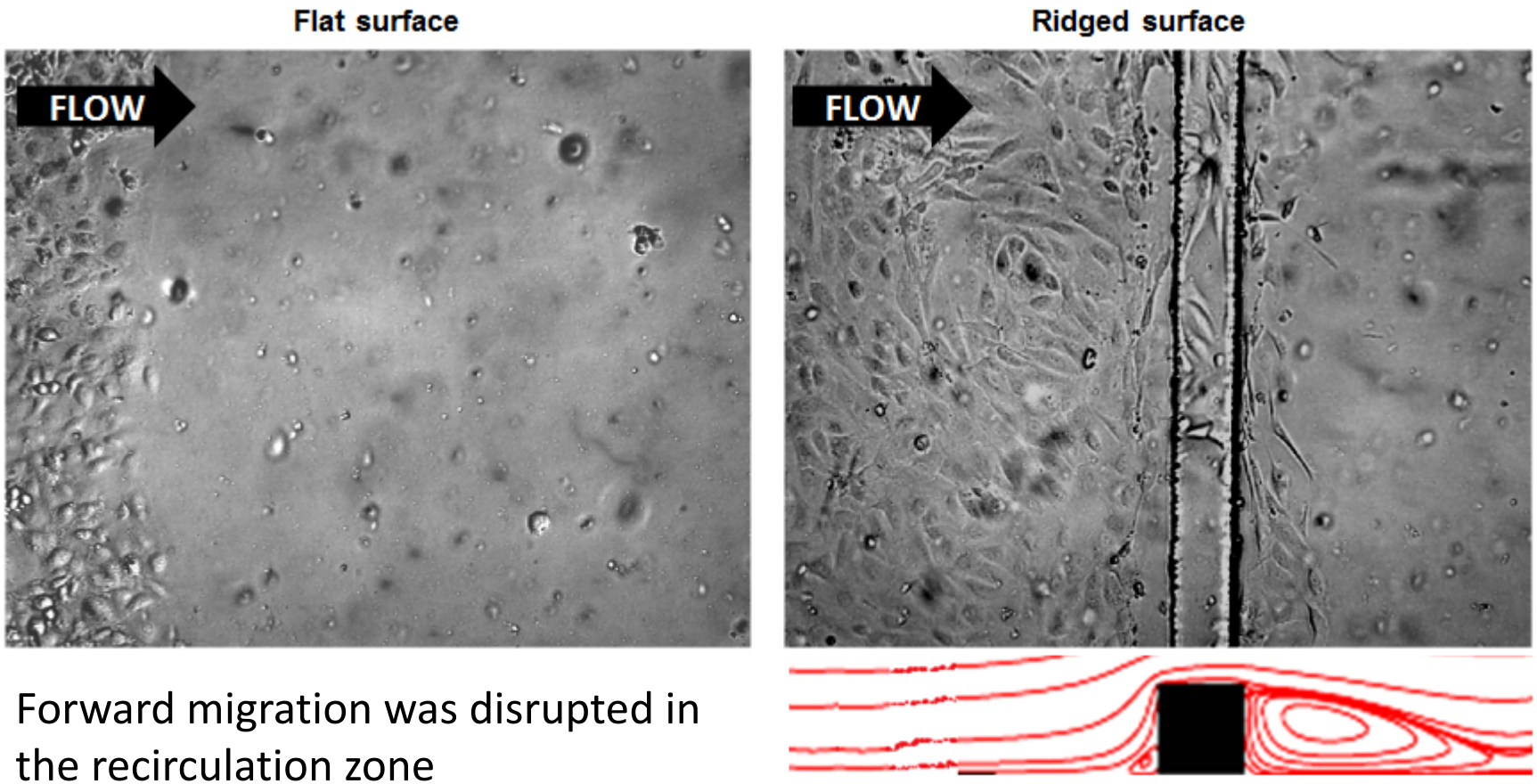
Presentation by Jolanda Wentzel

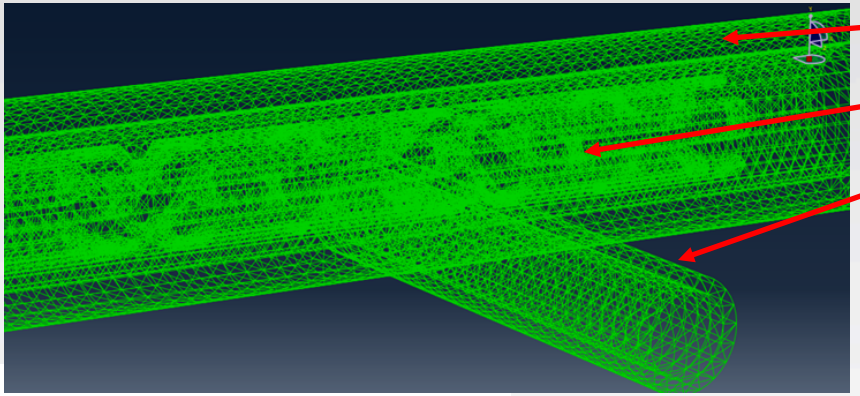
(Research by University of Sheffield, Sheffield Hallam Univ., Erasmus MC, Imperial College London, RMIT Univ. Melbourne, National Heart Centre Singapore)

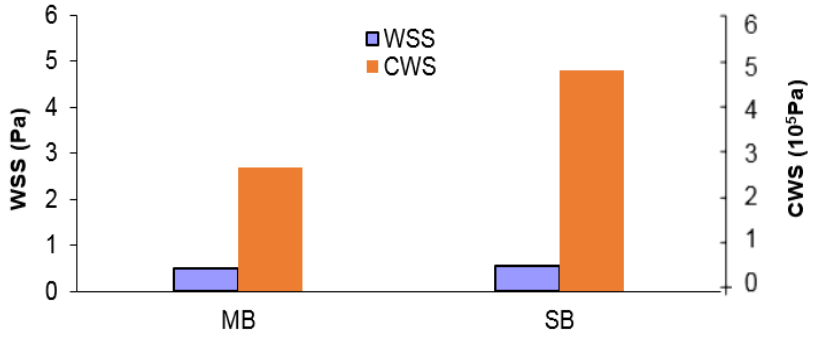


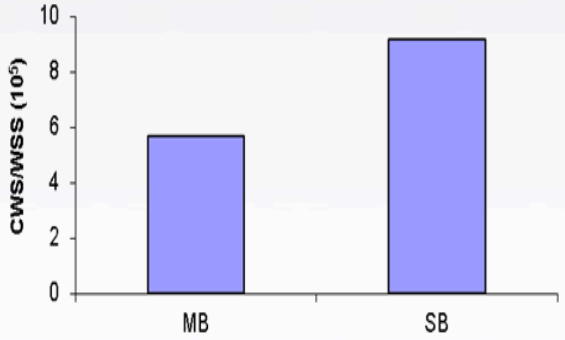
Forward migration was disrupted in the recirculation zone

Hsiao S et al, Cardiovasc Res 2016

Biomechanical Comparisons: MB vs. SB



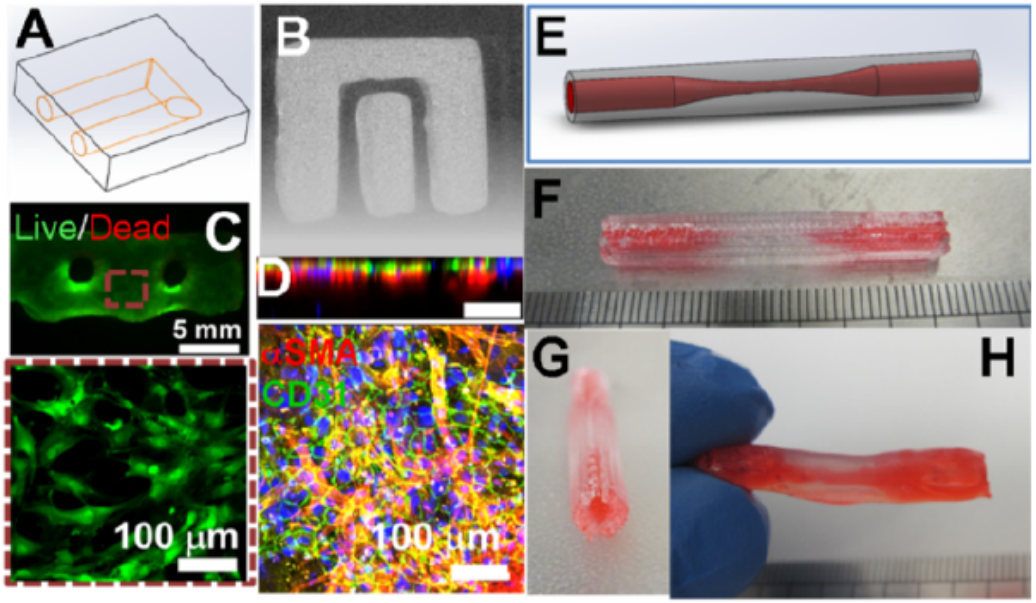


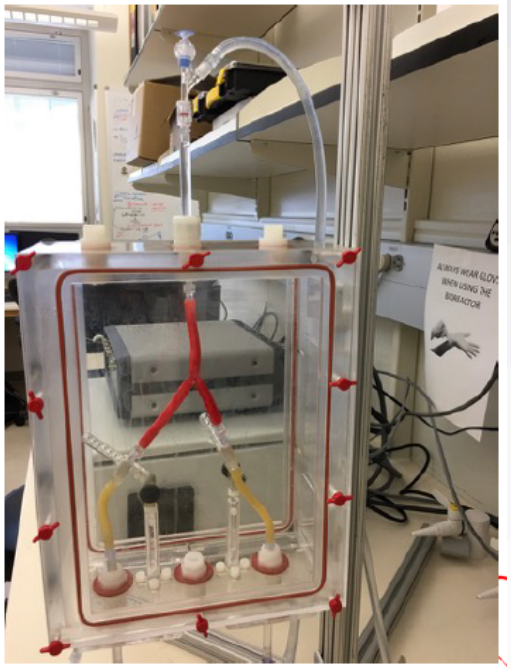


CWS: Circumferential wall stress; WSS: Wall shear stress
Cost Function = CWS/WSS

The simulations predict the SB to have a larger stress ratio than the MB.

Tissue Engineered (Bioprinted) Arteries





- Realistic arterial geometries (straight, bifurcations etc)
- Gelatin/hyaluronic acid- and collagen-based scaffolds
- Seeding with ECs and VSMCs
- Human-like wall mechanics and biology