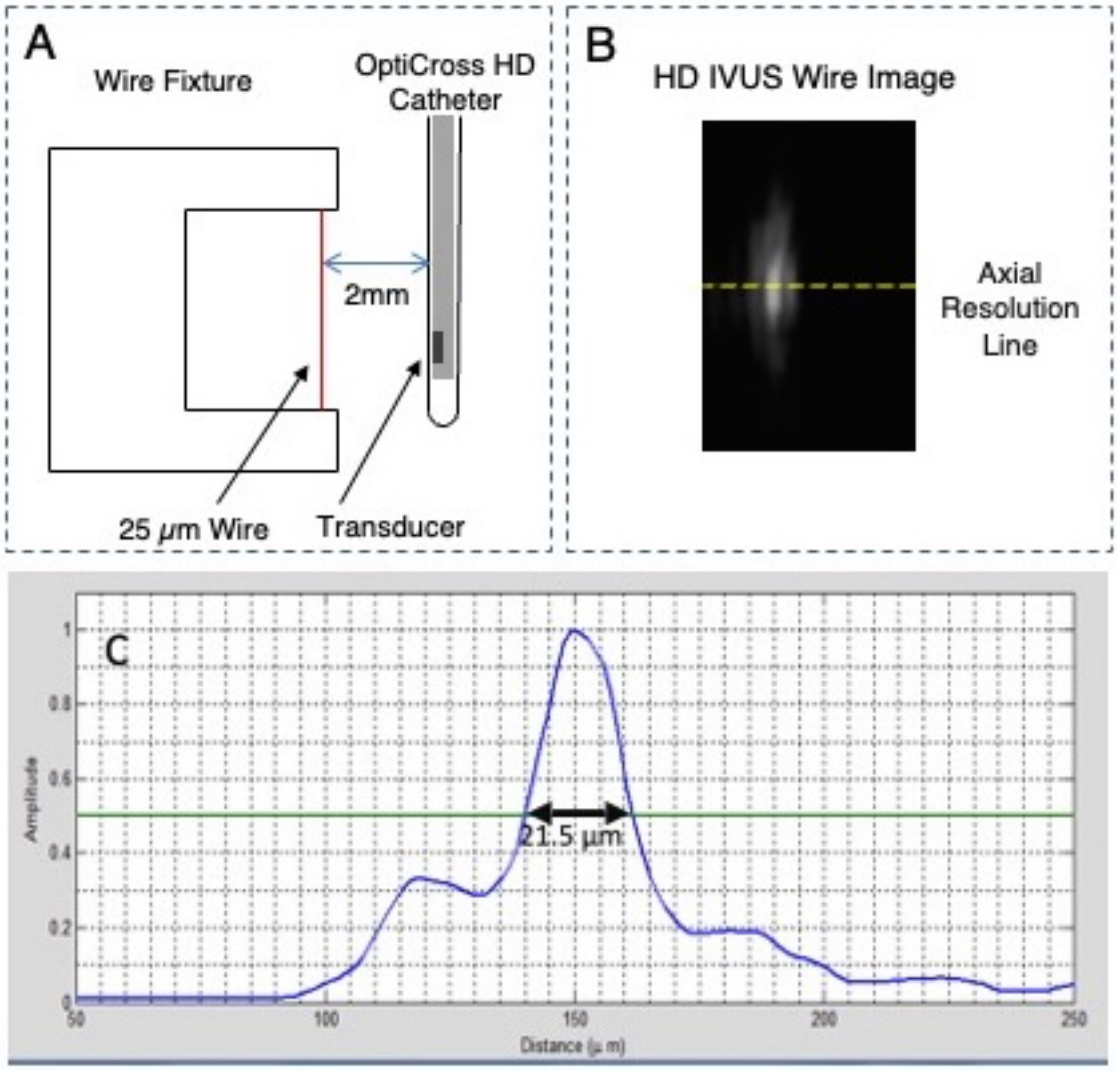
Supplementary Figure 1. HD IVUS resolution measured at bench testing by Boston Scientific.
A: A thin wire mounted to a fixture to create a point target. An IVUS catheter was placed in parallel to the wire at 2 mm depth.
B: An IVUS image is generated from the wire fixture representing the smallest target of an IVUS system. A horizontal dotted line was defined to measure the target size along the axial direction (parallel to the ultrasound beam)
C: A normalised brightness profile measured along the dotted line. The length of the profile at 0.5 brightness was measured at 21.5 µm. This value represents the maximum resolution capability with which two adjacent targets can be distinguished.



Supplementary Figure 2. Suggested workflow for IVUS optimised PCI. A: Baseline angiography is performed. B: Angiographic co-registration of an IVUS image is obtained. The real-time IVUS demonstrates a healthy segment beyond a long area of significant disease in the left anterior descending coronary artery. This correlates with a 3rd Diagonal vessel on fluoroscopy and in this case, was an anatomical landmark for a suitable landing zone for the distal edge of a stent. A mechanised pullback is then performed to allow interrogation of the entire segment. C: After rotablation and further vessel preparation, stents are implanted and post-dilated as informed from the baseline IVUS. A post-PCI IVUS run confirms satisfactory outcomes with adequate stent expansion (MSA; minimal stent area = 6.14mm^2 versus a distal reference of 5.71mm^2).