

## **Supplement material**

### **TITLE: Significance of Intraplaque Neovascularisation for Vulnerability: Optical Coherence Tomography Study**

#### **IVUS imaging and Analyses**

IVUS was performed after the intracoronary administration of 100 to 200 $\mu$ g nitroglycerin using the 40MHz Atlantis Pro catheter (Boston Scientific) and automatic pullback device at a rate of 0.5 mm/s. The corresponding OCT and IVUS images were co-registered using landmarks, such as side branches, calcifications and/or stents. IVUS image analysis was performed at an independent core laboratory at the Massachusetts General Hospital. All IVUS images were recorded digitally and analysed by two independent reviewers who were blinded to the OCT data, according to the criteria of the American College of Cardiology Clinical Expert Consensus Document on IVUS evaluations. When there was discordance between the observers, a consensus reading was obtained. The external elastic membrane (EEM), lumen, and plaque plus media cross-sectional area (CSA) were measured. The plaque burden was calculated as the plaque plus media CSA divided by the lesion EEM CSA. The reference was the image frame showing the largest lumen, within 10 mm proximal and distal from the target lesions. The remodelling index was calculated as the lesion EEM CSA divided by the mean reference EEM CSA.

**Supplement Table 1. Intravascular ultrasound findings**

|                           | Culprit lesions in UAP |           | <i>P</i> | Non-culprit lesions in UAP |           | <i>P</i> |
|---------------------------|------------------------|-----------|----------|----------------------------|-----------|----------|
|                           | NV                     | No NV     |          | NV                         | No NV     |          |
|                           | (n=12)                 | (n=23)    |          | (n=15)                     | (n=37)    |          |
| Distal reference site     |                        |           |          |                            |           |          |
| EEM CSA,mm <sup>2</sup>   | 10.2±3.5               | 10.0±3.8  | 0.89     | 12.4±4.4                   | 11.3±4.9  | 0.39     |
| Proximal reference site   |                        |           |          |                            |           |          |
| EEM CSA,mm <sup>2</sup>   | 14.0±5.7               | 11.7±4.2  | 0.19     | 13.6±4.4                   | 12.3±4.9  | 0.33     |
| Lesion site               |                        |           |          |                            |           |          |
| EEM CSA,mm <sup>2</sup>   | 12.4±4.1               | 10.9±3.3  | 0.27     | 12.7±4.4                   | 11.9±4.8  | 0.53     |
| Lumen CSA,mm <sup>2</sup> | 2.3±0.6                | 2.9±1.3   | 0.053    | 4.2±2.5                    | 5.2±3.0   | 0.22     |
| Plaque burden,%           | 79.8±7.9               | 72.8±10.7 | 0.024    | 65.8±14.3                  | 57.3±15.4 | 0.051    |
| Remodelling index         | 1.03±0.13              | 1.03±0.17 | 0.97     | 0.98±0.12                  | 1.02±0.15 | 0.33     |
| Negative                  | 3 (25%)                | 6 (26%)   | 0.94     | 5 (33%)                    | 8 (22%)   | 0.35     |
| Normal                    | 4 (33%)                | 7 (30%)   | 0.86     | 6 (40%)                    | 17 (46%)  | 0.78     |
| Positive                  | 5 (42%)                | 10 (44%)  | 0.92     | 4 (27%)                    | 12 (32%)  | 0.56     |

Data are presented as mean ±SD, n (%).

NV: neovascularisation; EEM: external elastic membrane; CSA: cross-section area;