Table S1: Summary of microstructures in arc melted, suction cast and OFZ alloy CM1

<table>
<thead>
<tr>
<th>Alloy CM1-</th>
<th>Condition</th>
<th>As cast</th>
<th>Heat treated</th>
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</table>
| 10 g      | Nb_{ss}, βNb_5Si_3  
            Nb_{ss} + βNb_5Si_3 eutectic | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and fine precipitates |
| 6mm       | Nb_{ss}, βNb_5Si_3  
            Nb_{ss} + βNb_5Si_3 eutectic | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and fine precipitates |
| 8mm       | Nb_{ss}, Nb_3Si, βNb_5Si_3  
            Nb_{ss} + βNb_5Si_3 eutectic  
            Nb_3Si → Nb_{ss} + αNb_5Si_3 | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and fine precipitates |
| 600 g     | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and fine precipitates | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and precipitates |
| OFZ All growth rates | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            Fine precipitates in αNb_5Si_3 | Nb_{ss}, αNb_5Si_3  
            Nb_{ss} + αNb_5Si_3 lamellar microstructure  
            subgrains in Nb_5Si_3 and fine precipitates |
Niobium solid solution (Cubic) = ▲
Niobium silicide \( \alpha\text{-}\text{Nb}_5\text{Si}_3 \) (Tetragonal) = □
Niobium silicide \( \beta\text{-}\text{Nb}_5\text{Si}_3 \) (Tetragonal) = ●

Figure S1: X-ray diffractograms of cast and heat treated CM1-10g and CM1-600g
Figure S2: X-ray diffractograms of cast and heat treated CM1-6mm and CM1-8 mm bars
Figure S3: X-ray diffractograms of cast CM1-OFZ grown at growth rates of 12, 60 and 150 mm/h.
Figure S4: Relationships between W and Ti concentrations in the Nbss (a) in as-cast CM1-10g and (b) CM1-OFZ where data for all three growth rates is included.
Figure S5: Backscattered electron image of a silicide in as-cast CM1-OFZ grown at 150 mm/hr and X-ray maps of the elements in the alloy.
Figure S6: X-ray diffractograms of heat treated CM1-OFZ grown at 12, 60 and 150 mm/h