

Supplementary data on method for analysis of Fumarate (Fum).

### **Method based on article**

Midttun et al (2016), PMID 27715010.

### **Material**

Fumarate (purity  $\geq 99\%$ ) and Fumarate-d2 (purity 98%) was obtained from Sigma-Aldrich, St.Louis, MO 63103 USA or 89555 Steinheim Germany.

### **Instrumentation**

Agilent 7010B GC/TQ and Agilent 8890 GC System.

### **Chromatography and detection**

GC-MS/MS; positive-ion multiple reaction monitoring (MRM);  
retention time = 2.90 min.

Fumarate precursor ion = 127.0 m/z; product ion = 99.0 m/z.

Fumarate-d2 precursor ion = 129.0 m/z; product ion = 101.0 m/z.

### **Method performance**

Linear range: 0.2 - 500  $\mu\text{mol/L}$ .

Linearity:  $r^2$ : 0.995.

LOD (S/N >5): 0.2  $\mu\text{mol/L}$ .

Within-day CV: 3-5 %.

Between-day CV: 3-5 %.