Electronic Supplementary Material (ESI) for Metallomics

Supplementary Information

for

Speciation studies of vanadium in human liver (HepG2) cells after *in vitro* exposure to bis(maltolato)oxovanadium(IV) using HPLC online with elemental and molecular mass spectrometry

Volker Nischwitz [1,3*], Julie T. Davies [1], Damian Marshall [1], Macarena González [2], Jose Luis Gómez Ariza [2] and Heidi Goenaga-Infante [1*]

[1] LGC Limited, Queens Road, Teddington, Middlesex TW11 0LY, UK
[2] Departamento de Química y Ciencia de los Materiales, Facultad de Ciencias Experimentales, Universidad de Huelva, Campus de El Carmen, 21007, Huelva, Spain
[3] current address: Forschungszentrum Juelich, 52425 Juelich, Germany

Figure S1 SEC-ICP-MS chromatograms of aqueous solutions of vanadium transferrin, BMOV and vanadyl sulfate. Isocratic elution was performed with 10 mM Tris-acetate, pH 7.4

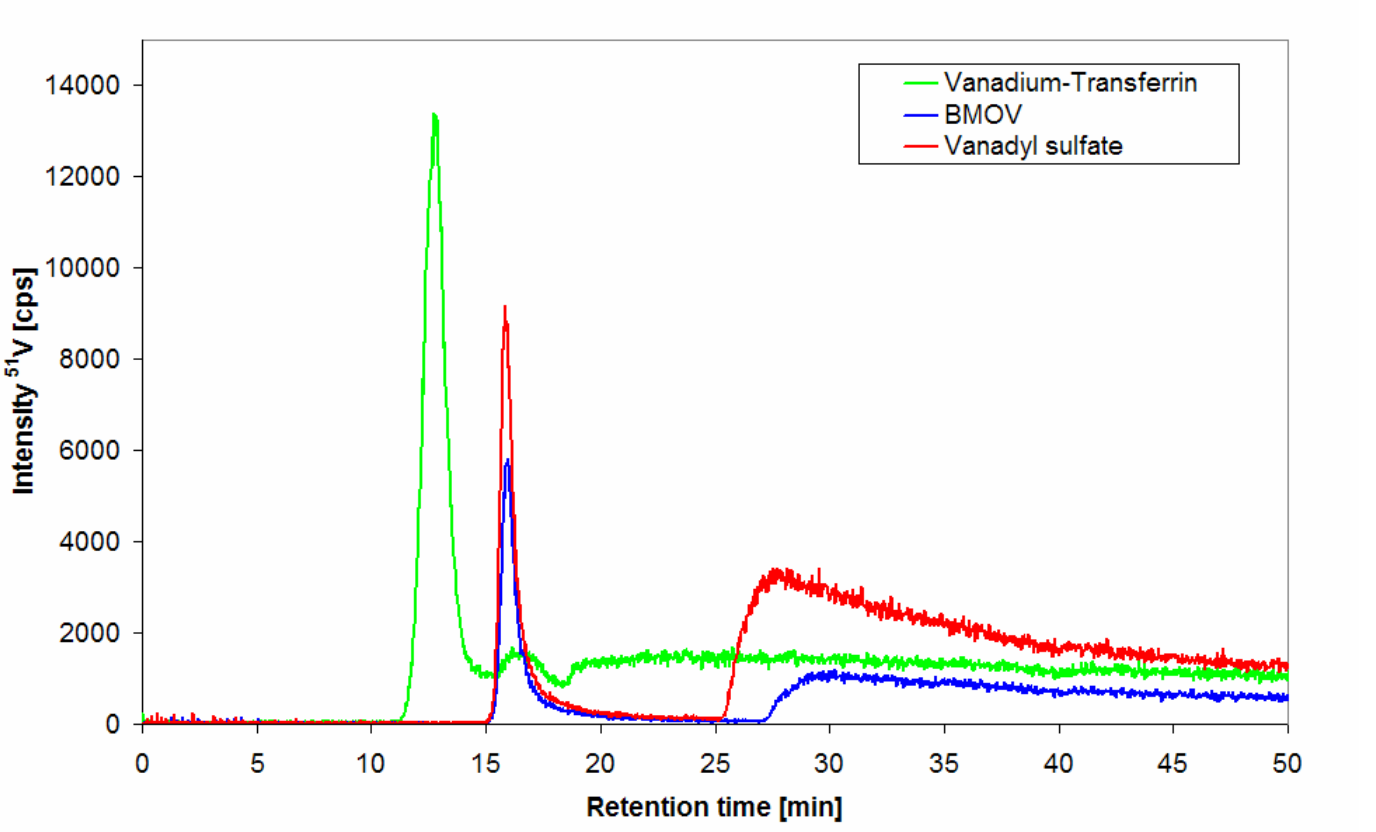

Figure S2 Comparison of 10 mM Tris-acetate, pH 7.4 and 10 mM ammonium acetate, pH 7.4 as mobile phase for isocratic elution of a cell extract from SEC with ICP-MS detection. The loss of intensity for unknown 1 is due to partial degradation of this metabolite during storage between replicate analyses.

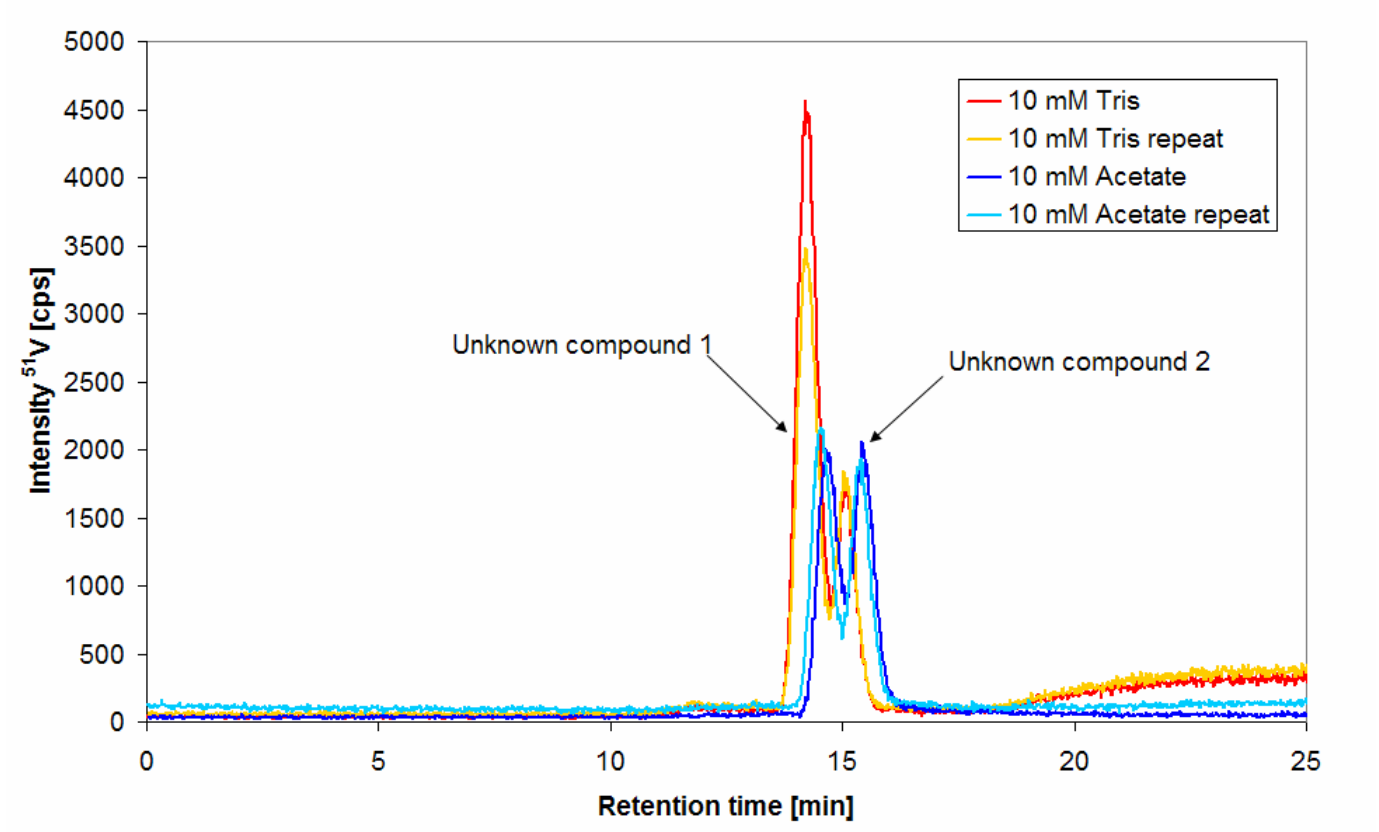

Table S1 Total vanadium concentration in cell lysates after exposure to BMOV in EMEM or HBSS medium. Cell lysis was performed either with a lysis buffer or by freeze thaw lysis. The absolute vanadium uptake by the cells is corrected for different volumes of reagents used during cell lysis. The vanadium results of each exposure replicate are calculated as the average of six independent replicate measurements by ICP-MS. The RSD for n = 6 was found to range between 10% (for controls) and 3% (for exposed cells).

Cell Medium	Lysis Method	Exposure	Vanadium in the lysate [µg/kg]		Vanadium uptake by Cells [ng]	
			Replicate 1	Replicate 2	Replicate 1	Replicate 2
EMEM	Lysis Buffer (100 µL)	Control	1.4	(52) [1]	0.1	(5)[1]
		BMOV	213	237	21	24
HBSS	Lysis Buffer (100 µL)	Control	1.0	1.4	0.1	0.1
		BMOV	1665	1611	166	161
HBSS	Freeze-Thaw (200 µL water)	Control	0.2	0.4	0.03	0.1
		BMOV	1281	1085	256	217

[1] this result should not be considered due to obvious contamination