

**Table 2S. Unique SUMO 2 peptide TENNDHINLK fragment ion sequence assignments**

Fragment TENNDHINLK measured as 599.58 (2+)

Measured m/z	Theoretical m/z	Ion name
231.10	231.10	b-2
260.18	260.20	y-2
374.27	374.24	y-3
487.40	487.32	y-4
574.37	574.21	b-5
624.44	624.38	y-5
711.31	711.27	b-6
739.43	739.41	y-6
824.37	824.35	b-7
853.46	853.45	y-7
938.41	938.40	b-8
967.51 (484.47 <sup>2+</sup> )	967.50	y-8
1051.51	1051.48	b-9

$\Delta m$ between y-n and yn-1	Fragment Ion	Measured m/z	Sequence	Measured m/z	Fragment Ion	$\Delta m$ between b-n and bn-1
			Thr			
			Glu	231.10	b-2	
114.05	y-8	967.51	Asn			
114.03	y-7	853.46	Asn			
114.99	y-6	739.43	Asp	574.37	b-5	
137.04	y-5	624.44	His	711.31	b-6	136.94
113.13	y-4	487.40	Ile	824.37	b-7	113.06
114.09	y-3	374.27	Asn	938.41	b-8	114.04
	y-2	260.18	Leu	1051.51	b-9	113.10
			Lys			