

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: RNA-Seq CTS at 5 Hz -- Raw data

File Name: Supplementary Data 2

Description: RNA-Seq CTS at 5 Hz -- Fold changes to protein-coding genes

File Name: Supplementary Data 3

Description: Proteomics CTS at 5 Hz -- Peptide list from Progenesis QI

File Name: Supplementary Data 4

Description: Proteomics CTS at 5 Hz -- Fold-changes to proteins

File Name: Supplementary Data 5

Description: Proteomics CTS at 5 Hz -- Fold-changes to mBBR labelling

File Name: Supplementary Data 6

Description: Proteomics CTS at 5 Hz -- Fold-changes to phosphorylation sites

File Name: Supplementary Data 7

Description: Proteomics CTS at 5 Hz -- Fold-changes to oxidation sites

File Name: Supplementary Data 8

Description: Proteomics CTS at 1 Hz -- Peptide list from Progenesis QI

File Name: Supplementary Data 9

Description: Proteomics CTS at 1 Hz -- Fold-changes to proteins

File Name: Supplementary Data 10

Description: Proteomics SUN2 KD -- Peptide list from Progenesis QI

File Name: Supplementary Data 11

Description: Proteomics SUN2 KD -- Fold-changes to proteins

File Name: Supplementary Data 12

Description: Proteomics SUN2 OE -- Peptide list from Progenesis QI

File Name: Supplementary Data 13

Description: Proteomics SUN2 OE -- Fold-changes to proteins