

## **Description of Additional Supplementary Files**

File Name: **Supplementary Data 1**

Description: List of sgRNA sequences of the pooled PTP CRISPR library. Related to Fig. 1.

File Name: **Supplementary Data 2**

Description: Log2 frequency changes of sgRNAs targeting the same gene at Days 2 and 14 post-sgRNA transduction. Related to Fig. 1

File Name: **Supplementary Data 3**

Description: Mass spectrometry identification of biotinylated proteins labeled by BirA\*-tagged ALIX or PTPN23. Related to Fig. 6.

File Name: **Supplementary Data 4**

Description: List of sgRNA sequences used in the validation study. Related to Fig. 1-7.

File Name: **Supplementary Data 5**

Description: List of antibodies used for immunoblotting, confocal imaging, and flow cytometry, including their sources and dilutions.