**Description of Additional Supplementary Files**

File Name: Supplementary Figure S1

Description: **The structurally unresolved loop structure of NamPT.** Sequence alignment of NamPT of different species cropped to the region around the unresolved loop structure.

File Name: Supplementary Table S1

Description: Query proteins used for Blast searches.

File Name: Supplementary Table S2

Description: Overview of kinetic constants and rate laws used for the construction of the mathematical model.

File Name: Supplementary Table S3

Description: Root mean square deviation (RMSD) values between different structures.

File Name: Supplementary Data S1

Description: <MODEL FILE>

File Name: Supplementary Data S2

Description: <MODEL FILE> for fig 7

File Name: Supplementary Data S3

Description: Scripts used to run analyses.