### **Supplementary Information**

#### Role of Cytosolic Carboxypeptidase 5 in Neuronal Survival and Spermatogenesis

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**Supplementary Figure S1.** The original blots of Fig. 1c, showing that CCP5 activity is specifically inhibited by 1,10-phenanthroline. Those lanes presented in Fig. 1c are indicated. Lanes 3 and 4 are not related to this study and were not presented in Fig. 1c.



**Supplementary Figure S2.** The original blots for Fig. 2b, showing the activities of purified recombinant Nna1 and CCP5. The experiments for CCP5 and Nna1+CCP5 were duplicated. For brevity, only designated lanes are presented in Fig. 2b.



**Supplementary Figure S3.** Representative images of Tbr2 immunohistochemistry and hematoxylin counterstaining on olfactory bulb sections from 6 months old wild-type (**a**),  $pcd^{3J}$  (**b**), and *Agbl5*-KO/ $pcd^{3J//-}$  double mutant (**c**) mice. While Tbr2 positive olfactory bulb mitral cells (arrows) are preserved in wild-type animals (**a**), there is a similar level of mitral cell loss in pcd and *Agbl5*-KO/ $pcd^{3J}$  double mutants (b, c). Note that the mitral cells in  $pcd^{3J}$  and *Agbl5*-KO/ $pcd^{3J}$  olfactory bulbs are shrunk with smaller nuclei than in wild-type mice. Scale bar: 50 µm.



**Supplementary Figure S4.** Representative image of hematoxylin-eosin staining section of the adult mouse testis. Germ cells of different developmental stages and Sertoli cells are labeled to indicate their typical location in the testis.



**Supplementary Figure S5.** Quantitative real-time PCR shows that both *Nna1* and *CCP5* RNA levels are reduced in testis of *pcd* mice compared to that of wild-type littermates at 3-month of age. RNA levels were normalized to internal GAPDH levels and compared with the values of wild-type testis. Bars are mean  $\pm$  SEM (error bars) of determinations from three animals.