

1 **Description of Additional Supplementary Information**

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3 **Supplementary Data 1: Breast Cancer Proteomics Meta Data.** Supplementary Data 1a
4 includes the study design, Supplementary Data 1b includes the isoDoping peptide library,
5 Supplementary Data 1c includes the clinical and pathological characteristics for cases included in
6 the correlative analyses of the study cohorts. Related to Figure 1 and Supplementary Figures 1-2.

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8 **Supplementary Data 2: Biological differences between the proteome clusters of the 08-13**

9 **cohort.** Supplementary Data 2a includes the expression of highly variant proteins across
10 samples. Supplementary Data 2b includes the association between proteome clusters and PAM50
11 subtype. Supplementary Data 2c includes results of the differential protein expression analysis
12 between each cluster compared to other clusters. Supplementary Data 2d-2g includes the
13 pathway enrichment analysis between each proteome cluster compared to other clusters.
14 Supplementary Data 2h includes the distribution of clinico-pathological characteristics across the
15 different proteome clusters in the 08-13 cohort. Related to Figures 2-3 and Supplementary
16 Figures 5-6.

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18 **Supplementary Data 3: Biological and clinical data analysis of the TNBC cohort in the 08-**

19 **13 cohort.** Supplementary Data 3a includes the association between TNBC clusters and PAM50
20 subtype. Supplementary Data 3b includes the results of differential protein expression analysis
21 between each TNBC cluster compared to other clusters. Supplementary Data 3c-3f includes the
22 pathway enrichment analysis for each TNBC cluster compared to other TNBC clusters.

23 Supplementary Data 3g includes the association between TNBC clusters and the 08-13 proteome

24 clusters. Supplementary Data 3h-3i includes the survival analysis for individual proteins and
25 their characteristics according to TNBC cluster. Related to Figures 5-6 and Supplementary
26 Figure 11.

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28 **Supplementary Data 4: Biological differences between the main three proteome clusters of**
29 **the 86-92 cohort.** Supplementary Data 4a includes the association between the 86-92 clusters
30 and PAM50 subtype. Supplementary Data 4b includes the results of differential protein
31 expression analysis between each 86-92 cluster compared to other clusters. Supplementary Data
32 4c-4e includes the pathway enrichment analysis for each 86-92 cluster compared to other
33 clusters. Supplementary Data 4f includes the recurrence free survival analysis for individual
34 proteins. Supplementary Data 4g includes the distribution of clinico-pathological characteristics
35 across the three main proteome clusters in the 86-92 cohort. Related to Figure 7 and
36 Supplementary Figure 13.

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