

## Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: **Model & Data Summary**. Includes full description of variables included in multivariate models for all analyses, as well as breakdowns of variables for each tumour subtype.

File Name: Supplementary Data 2

Description: **Sex-Associated Driver Mutation Results**. Univariate and multivariate results for associations between sex and driver mutations for each tumour subtype.

File Name: Supplementary Data 3

Description: **Sex-Associated Single Nucleotide Variant Load Results**. Univariate and multivariate results for associations between sex and single nucleotide variant load for coding, non-coding and overall contexts.

File Name: Supplementary Data 4

Description: **Sex-Associated Measures of Tumour Evolution Results**.

Univariate and multivariate results for associations between sex and polyclonality, and between sex and mutation timing for single nucleotide variants, indels and structural variants.

File Name: Supplementary Data 5

Description: **Sex-Associated Genome Instability Results**. Univariate and multivariate results for associations between sex and percent genome altered. Comparisons provided for copy number alterations, gains and losses of each chromosome.

File Name: Supplementary Data 6

Description: **Sex-Associated Copy Number Loss Results**. Univariate and multivariate results for associations between sex and copy number loss of each gene for pan-cancer and tumour subtype results.

File Name: Supplementary Data 7

Description: **Sex-Associated Copy Number Gain Results**. Univariate and multivariate results for associations between sex and copy number gain of each gene for pan-cancer and tumour subtype results.

File Name: Supplementary Data 8

Description: **Sex-Associated Mutational Signatures Results**. Univariate and multivariate results for associations between sex and oncogenic mutational signatures. Results given for both proportion of signature positive tumours and signature activity.

File Name: Supplementary Data 9

Description: **Associations between Sex and Quality Control Metrics**. Summary of univariate and multivariate results for associations between sex and quality control metrics for sequencing and alignment.

File Name: Supplementary Data 10

Description: **Data Accession and Links**. Description of PCAWG data used in study with accession information through both Synapse and the ICGC data portal.