**Proteome sampling with e-biopsy carries features discriminating between cutaneous squamous cell carcinoma and basal cell carcinoma.**

Edward Vitkin1,2, Julia Wise1, Ariel Berl3, Ofir Shir-az3, Batel Gabay1, Amrita Singh1, Vladimir Kravtsov4, Zohar Yakhini2,5, Avshalom Shalom3, Alexander Golberg2.

1 Porter School of Environment and Earth Sciences. Tel Aviv University, Tel Aviv, Israel

2Arazi School of Computer Science, Interdisciplinary Center, Herzliya, Israel

3 Department of Plastic Surgery, Meir Medical Center, Kefar Sava, Israel.

4 Department of Pathology, Meir Medical Center, Kefar Sava, Israel.

5 Department of Computer Science, Technion - Israel Institute of Technology, Haifa, Israel

**Supplementary Information**

**Table S1.** Electrical and thermal properties of human skin used for the numerical simulations.

**Table S2.** Reproducibility analysis of molecular harvesting with e-biopsy

**Table S3.** Sampled proteins unique to BCC

**Table S4.** Sampled proteins unique to cSCC

**Table S5.** Student TTest of SCC vs BCC

**Table S6.** Wilcoxon rank sum test of SCC vs BCC

**Table S7.** Differential expression summary of SCC vs BCC

**Table S8.** Input to GOrilla tool

**Table S9.** GOrilla Output. GO Processes significantly different between cSCC and BCC patients

**Table S10.** GOrilla Output. GO Functions significantly different between cSCC and BCC patients

**Table S11.** GOrilla Output. GO Components significantly different between cSCC and BCC patients

**Table S12.** Performances of different Machine Learning models over different amounts of selected proteins

**Table S13.** References (from IntAct DB) used to construct the protein-protein interaction map on **Figure 7.**

**Table S14.** Pathways where proteins from **Table 5** participate**.**

**Figure S1** Patient Demographics

**a.** Gender distribution of patients; **b.** Age distribution of patients; **c.** Country of birth distribution of patients

**Figure S2** GO Processes significantly different between cSCC and BCC patients

**Figure S3** GO Functions significantly different between cSCC and BCC patients

**Figure S4** GO Components significantly different between cSCC and BCC patients