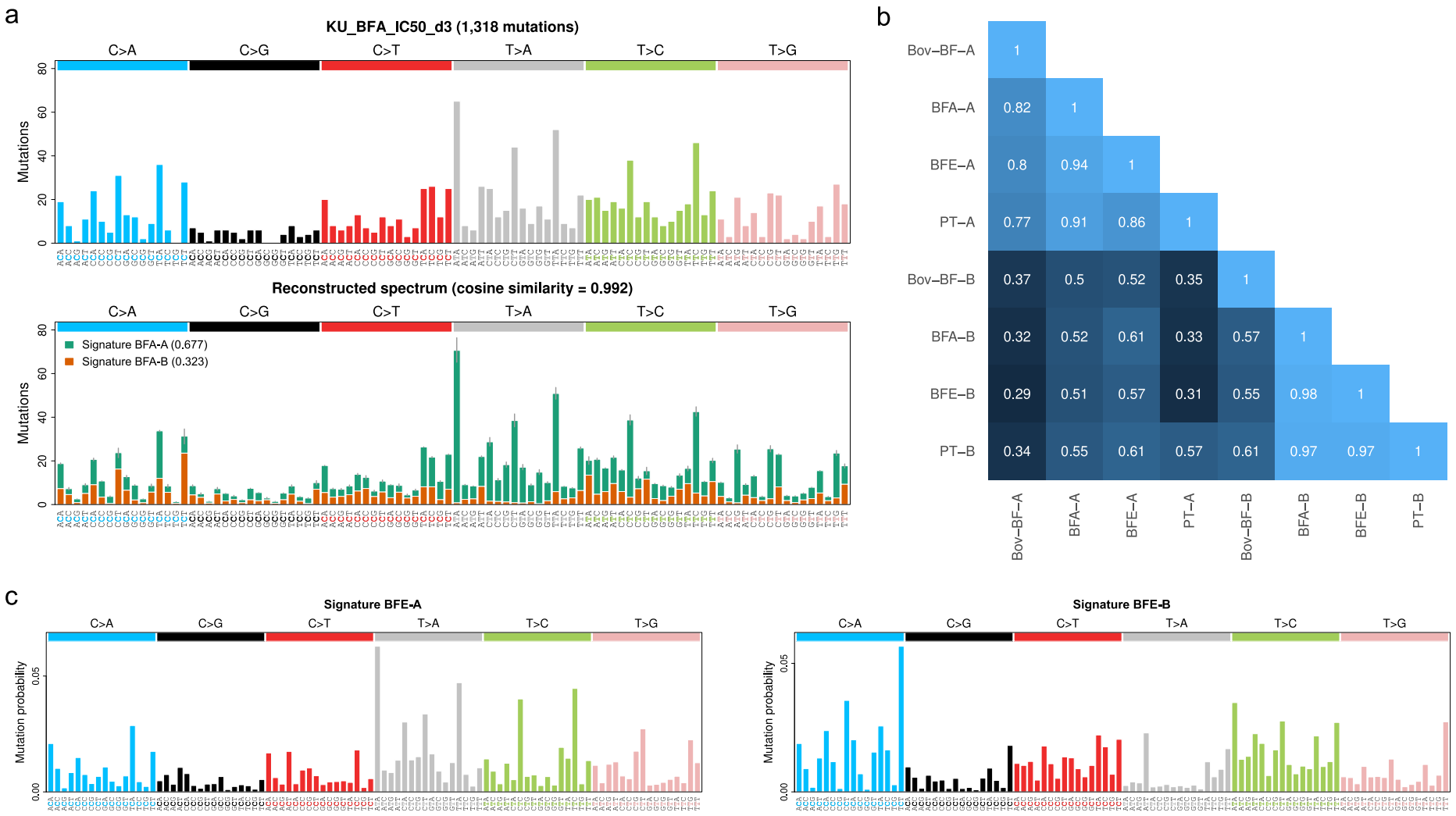

Fig. S9. Mutational signatures in human bladder cancer cell lines after exposure to bracken fern extracts. **a,** The observed (upper panel) and reconstructed (lower panel) single base substitution (SBS) spectra for human KU-19-19 cells treated for 3 days (IC_{50}) with bracken fern whole extract from acetate extraction (BFA). The reconstructed spectrum shows the activity, or exposure, of each signature for each substitution type. **b**, The cosine similarities between SBS signatures identified in bovine UC (Bov-BF) and KU-19-19 cells treated with either BFA, bracken fern whole extract from ethyl acetate extraction (BFE) or ptaquiloside (PT). **c,** Novel SBS signatures, designated Signature BFE-A and BFE-B, identified in KU-19-19 cells treated with BFE. The SBS mutation spectra are comprised of 96 substitution types, which are derived from six possible SBS mutations, each with 4 possible bases directly 5’ and 3’.