

Legends to Supplementary Figures

Supplementary Figure-1: [¹¹C]Choline SUV ave TAC curves showing a profile in i; primary prostate tumors, ii; true positive nodes, iii; false positive nodes, iv; inguinal nodes, v; out of template (common iliac & para-aortic) nodes and, vi; the mean TACs demonstrating a good retention of activity after plateauing after ~15 min.

Supplementary Figure-2: [¹¹C]Choline SUV max TAC curves showing a profile in i; primary prostate tumors, ii; true positive nodes, iii; false positive nodes, iv; inguinal nodes, v; out of template (common iliac & para-aortic) nodes and, vi; the mean TACs demonstrating a good retention of activity after plateauing after ~15 min. There is a hint of increasing activity at 60 min which may be due to contribution of [¹¹C]betaine.

Supplementary Figure-3: SUV_{ave} and SUV_{max} at early and late time points for primary prostate tumors and nodes.

Supplementary Figure-4: a; T2 weighted MRI (i), Axial [¹¹C]choline PET (ii) and PET-CT fused (iii) shows focal uptake in the prostate (arrowed), **b;** T2 weighted MRI (i), Axial [¹¹C]choline PET (ii) and PET-CT fused (iii) showing right seminal vesicle involvement (arrowed), **c;** T2 weighted MRI (i), Axial [¹¹C]choline PET (ii) and PET-CT fused (iii) showing capsular breach (T3a disease) on the left (arrowed).

Supplementary Figure-5: Coronal MIP showing focal uptake in bilateral inguinal nodes (hashed arrows).

Supplementary Figure-6: CHK α immunostaining showing brown staining in the human bronchial tissue which was used as a positive control. Note lack of staining in the negative control. Magnifications of 200X.

Supplementary Figure-7: Correlation of [^{11}C]choline PET uptake with immunohistochemistry scores for CHK α and Ki67. The best Spearman's correlation was with, **a**; SUV $_{60, \text{ave}}$ with CHK α followed by, **b**; SUV $_{60, \text{max}}$ and CHK α . There was no correlation between [^{11}C]choline PET values and Ki67 (**c** and **d**).