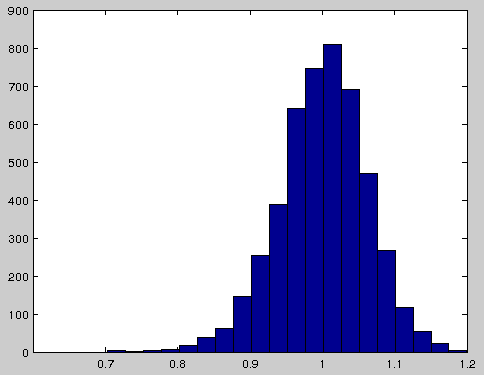
**Overlap of highly FDG-avid and FMISO hypoxic tumour subvolumes in patients with head and neck cancer**

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SD = 0.06

mean = 1.00

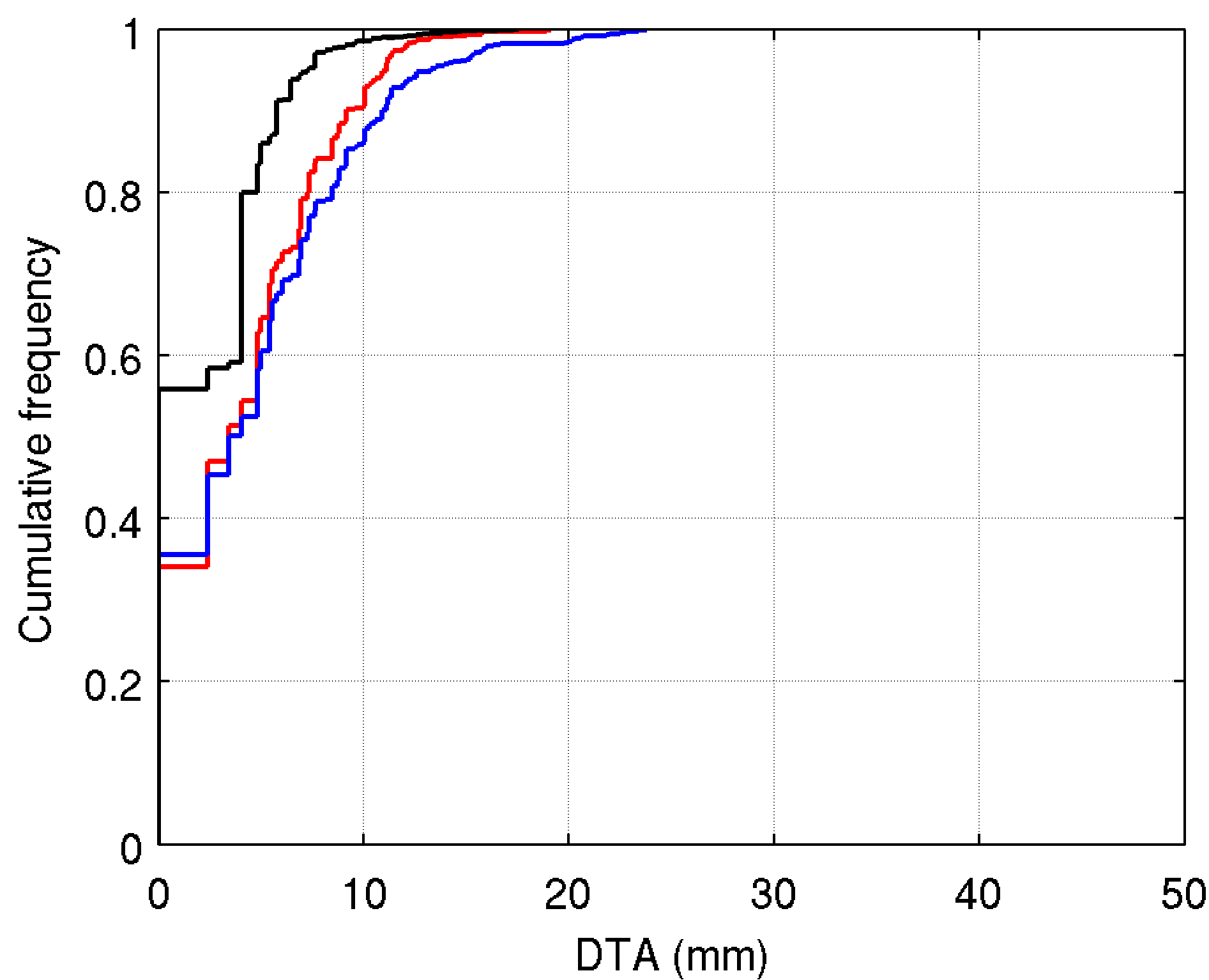
TMR in neck muscle (all patients)

Supplementary Material Figure 1: The overall histogram of TMR values in the muscle ROIs for all patients. For each patient the muscle values were normalized by the respective mean value, to calculate the TMR. Consequently, the mean of the distribution is 1.00. A standard deviation of 0.06 was observed. Thus, a TMR threshold value of 1.4 to identify hypoxic subvolumes is more than six times the standard deviation higher than the mean muscle activity.Supplementary Material Table 1: Voxel-based correlations between the three different PET tracers in the GTVprim expanded by a 5 mm margin. The Pearson correlation coefficient rp and the Spearman rank correlation coefficient rs are shown.

|  |  |  |
| --- | --- | --- |
|  | rs | rp |
| FMISO4h - FDG | 0.62 (0.28-0.84) | 0.65 (0.38-0.87) |
| FMISO 4h - M | 0.28 (0.00-0.65) | 0.34 (-0.04-0.71) |
| FDG - M | 0.28 (-0.09-0.62) | 0.33 (-0.07-0.78) |

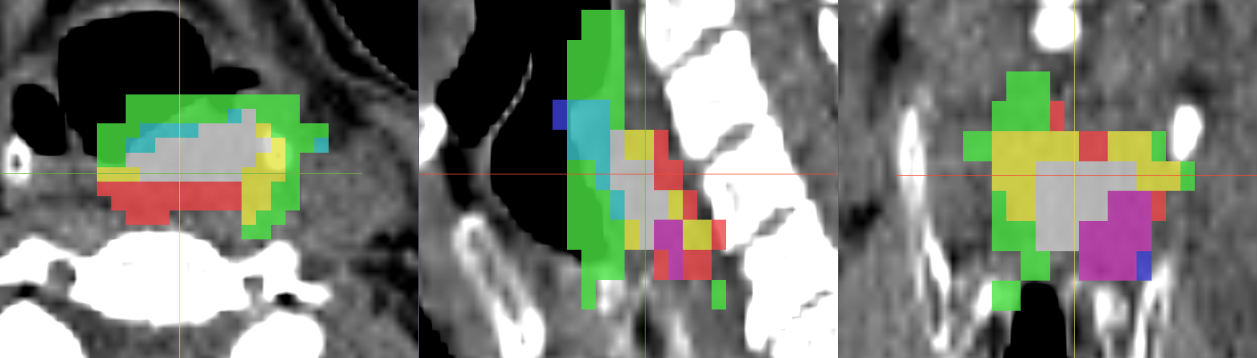
Supplementary Material Table 2: Absolute volumes of the different segmentations were compared using a Mann-Whitney U test. The table shows p values for the different combinations. All p values are smaller than 0.05.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | GTVprim | VFDG | VH | VM |
| GTVprim | 1 | 4.87×10-7 | 2.55×10-6 | 5.21×10-8 |
| VFDG |  | 1 | 3.15×10-2 | 5.34×10-7 |
| VH |  |  | 1 | 6.26×10-3 |
| VM |  |  |  | 1 |

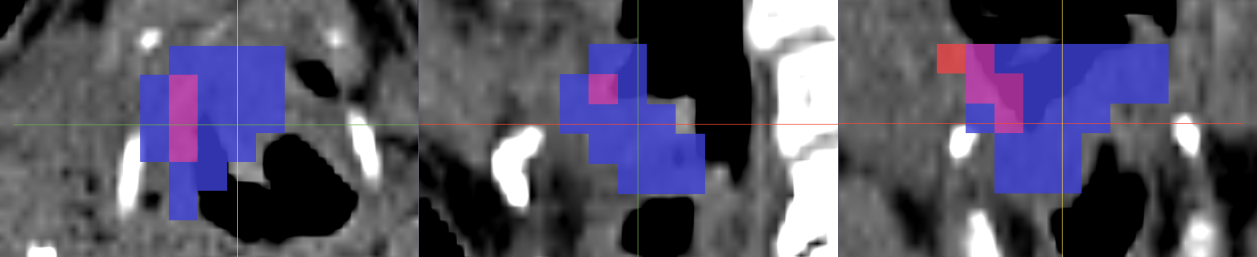


Supplementary Material Figure 2: The small number of very large DTAs in Figure 1 disappear if patients Tue012 and Tue017 are excluded from the analysis.

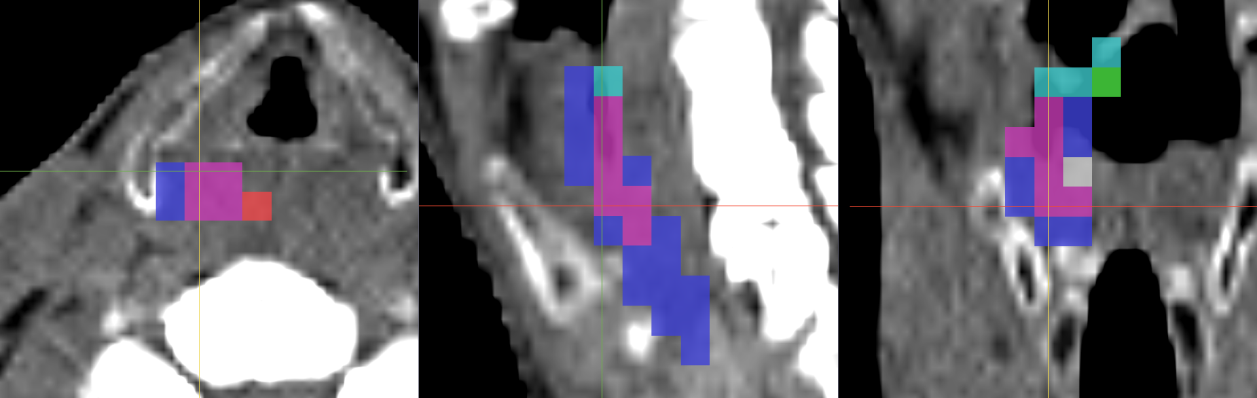
Supplementary Material Figure 3: Legend for Supplementary Material Figures 4-24.



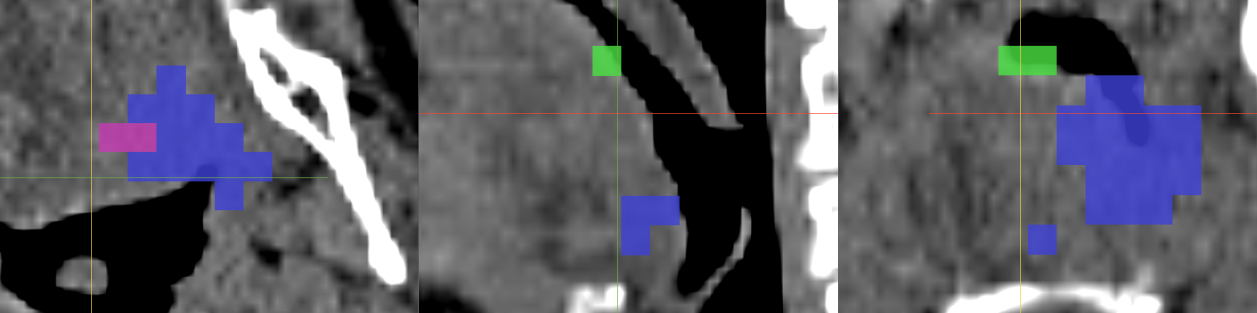
Supplementary Material Figure 4: Tue004



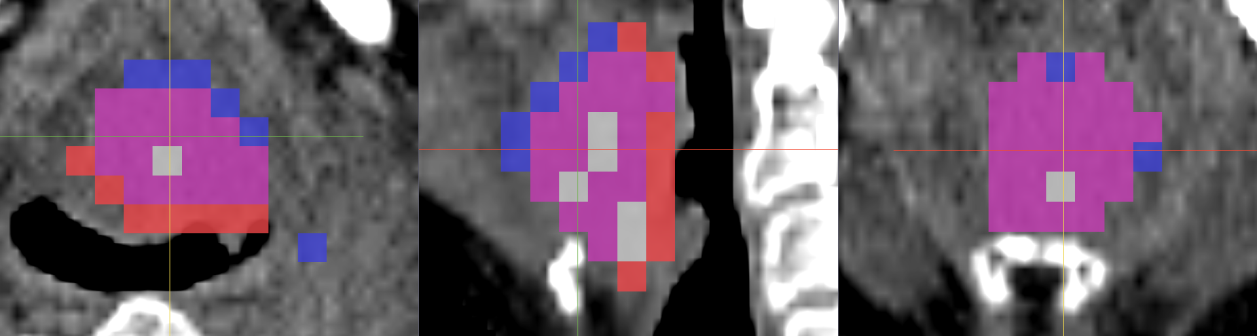
Supplementary Material Figure 5: Tue005



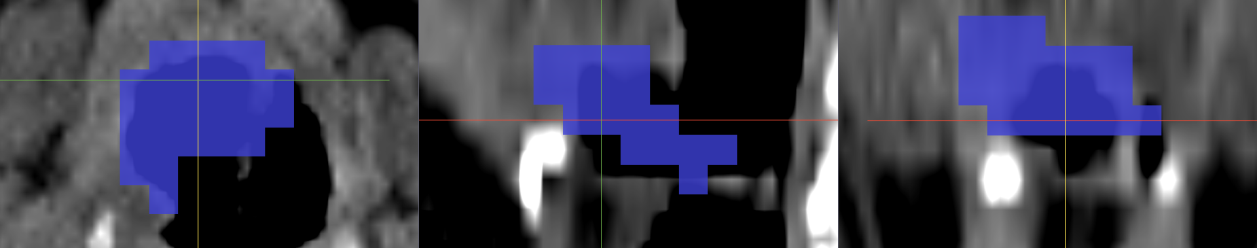
Supplementary Material Figure 6: Tue006



Supplementary Material Figure 7: Tue007



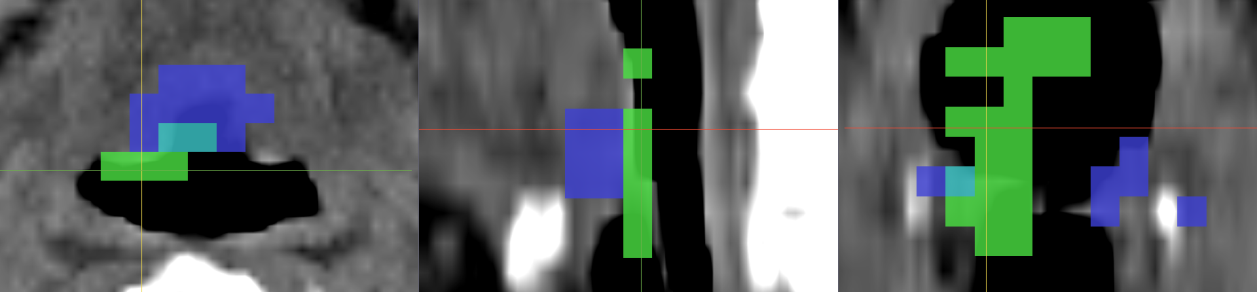
Supplementary Material Figure 8: Tue008



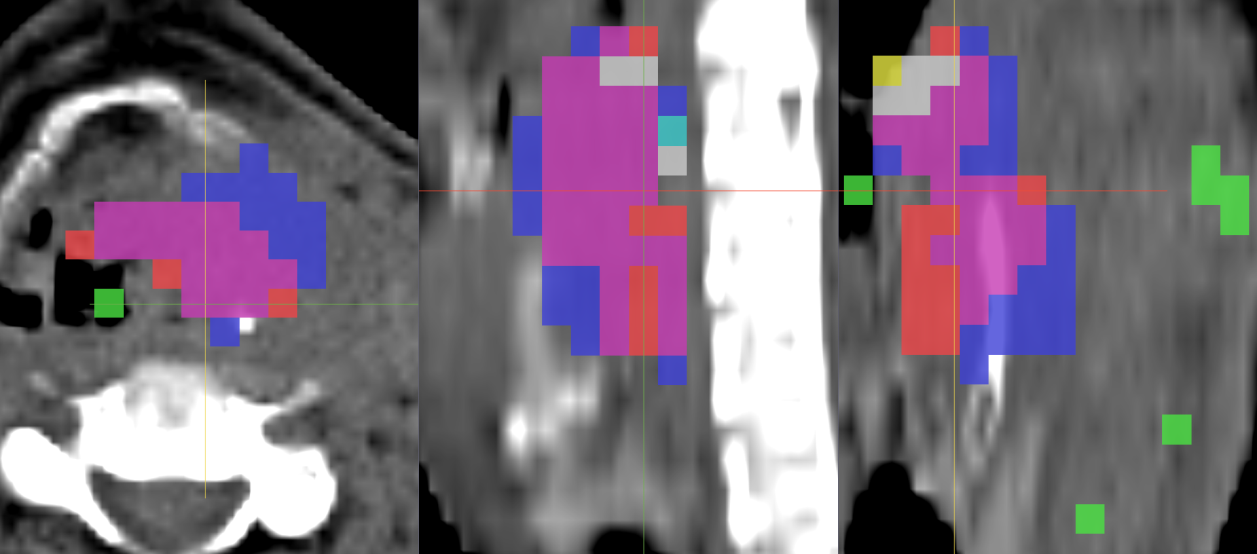
Supplementary Material Figure 9: Tue009



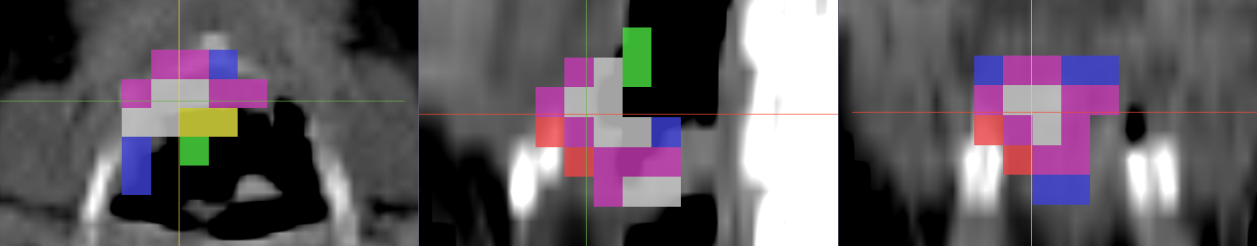
Supplementary Material Figure 10: Tue010



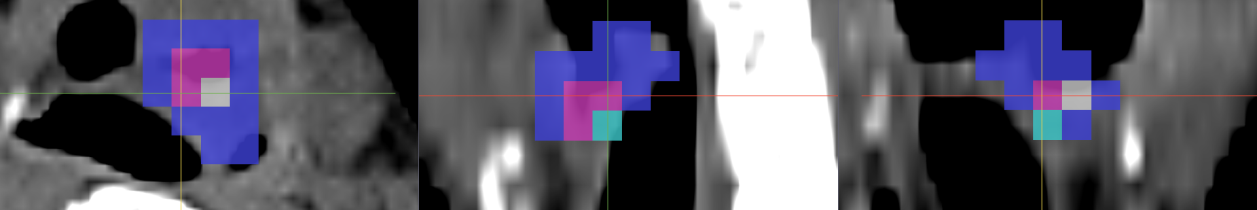
Supplementary Material Figure 11: Tue011



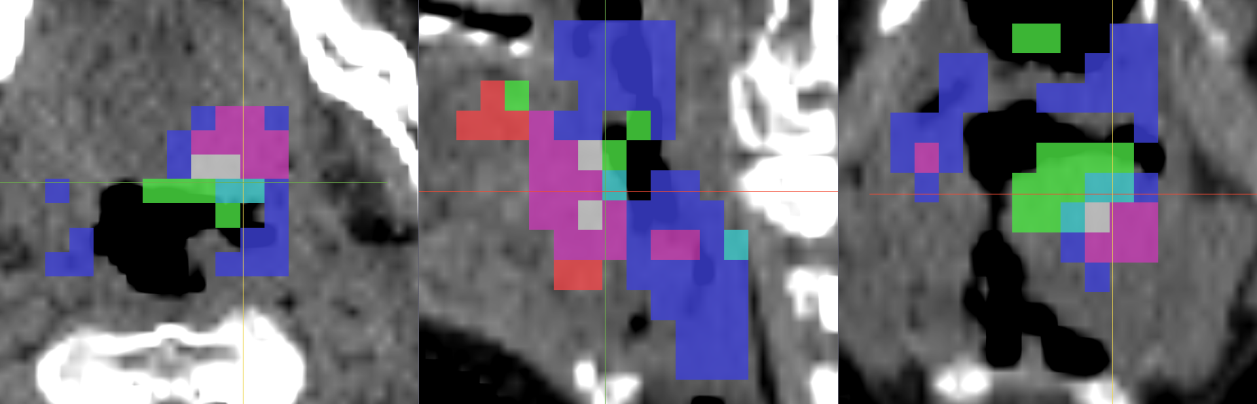
Supplementary Material Figure 12: Tue012



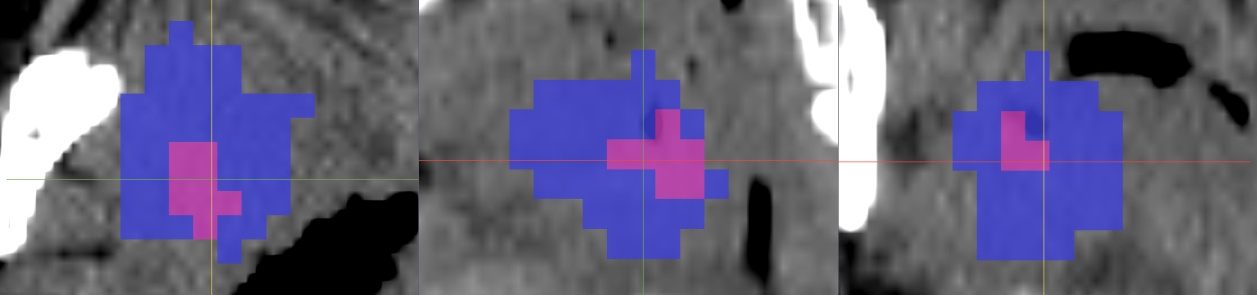
Supplementary Material Figure 13: Tue013



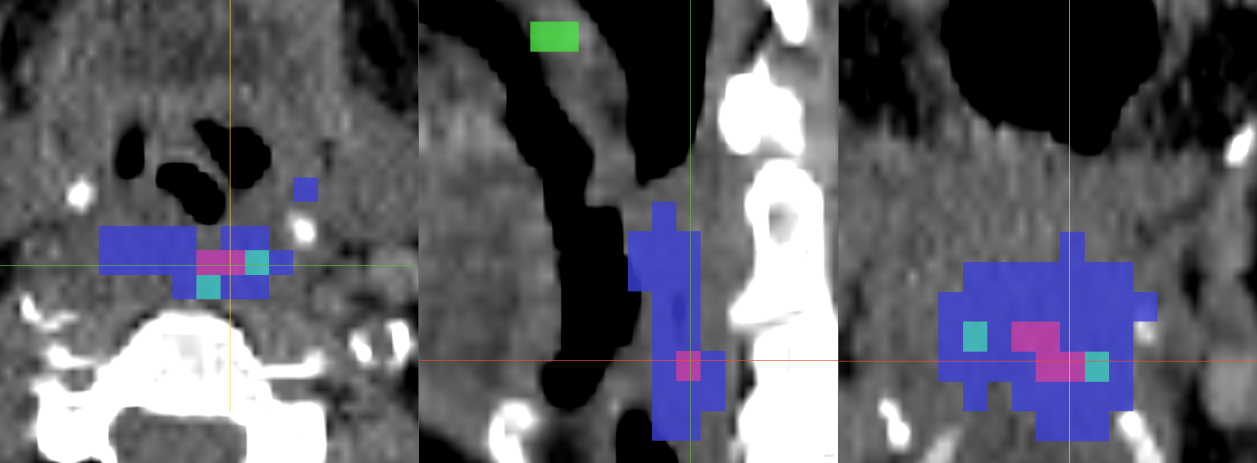
Supplementary Material Figure 14: Tue014



Supplementary Material Figure 15: Tue15



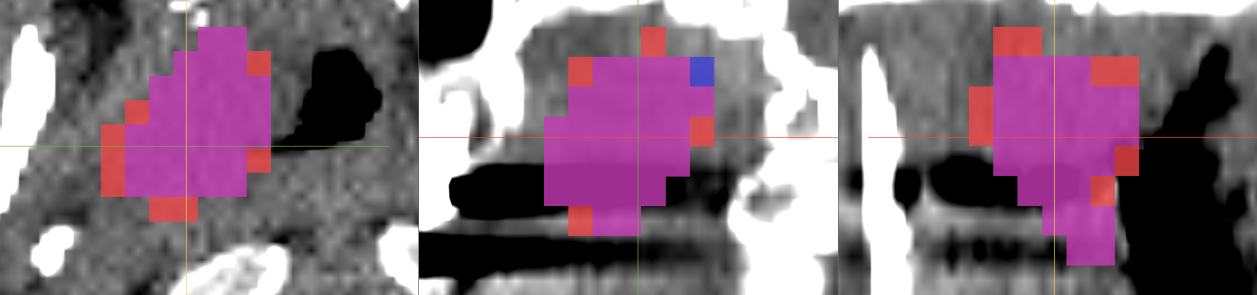
Supplementary Material Figure 16: Tue016



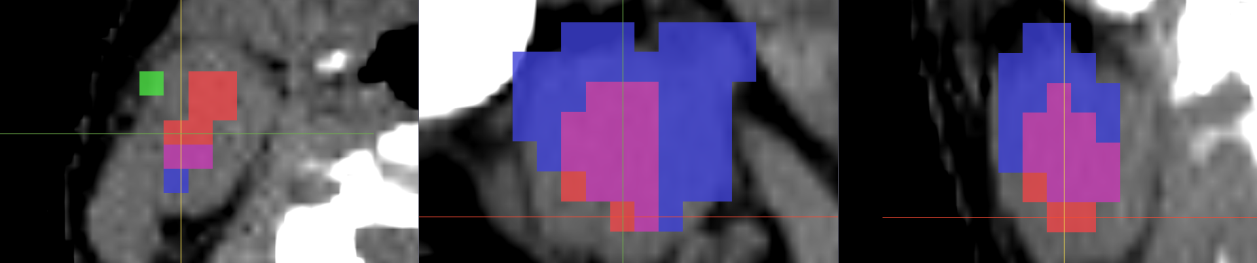
Supplementary Material Figure 17: Tue017



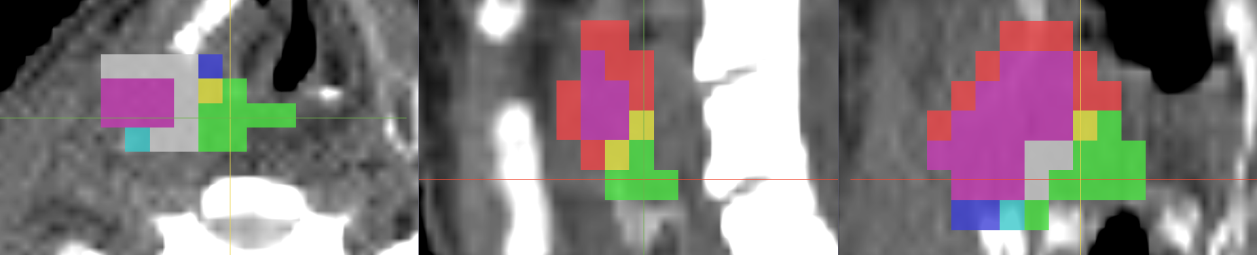
Supplementary Material Figure 18: Tue018



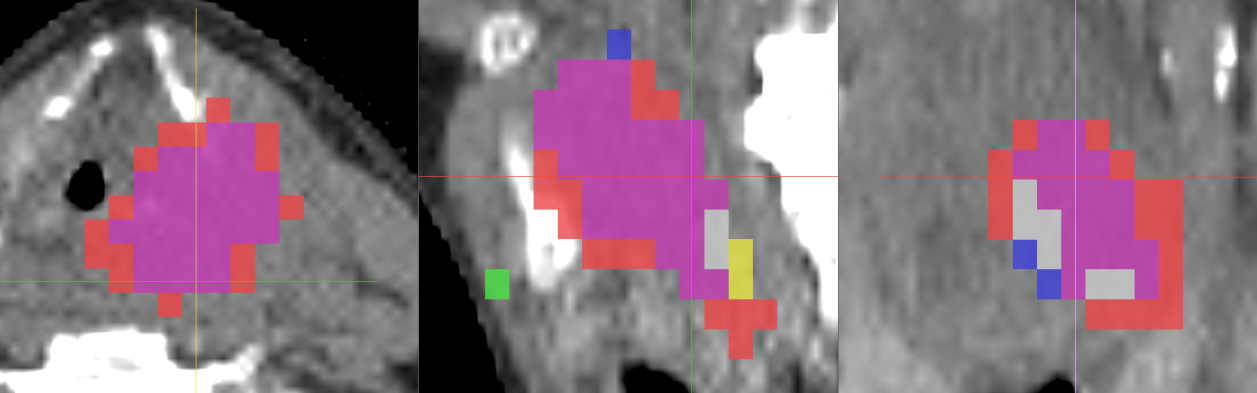
Supplementary Material Figure 19: Tue019



Supplementary Material Figure 20: Tue020



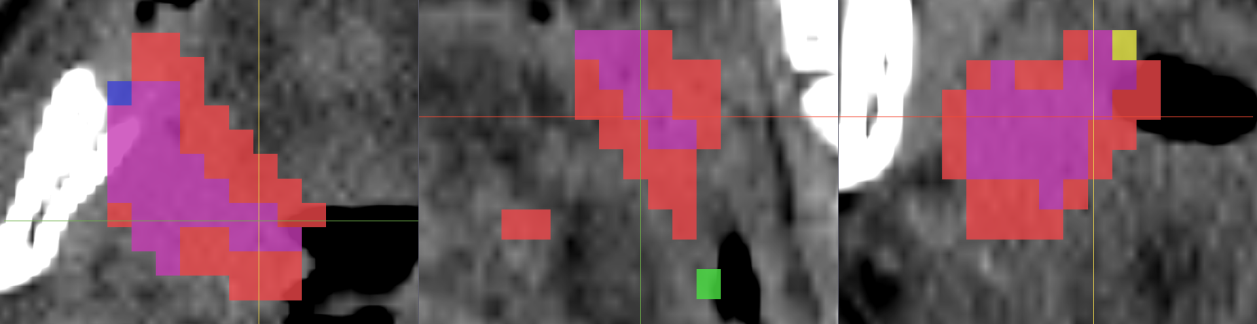
Supplementary Material Figure 21: Tue022



Supplementary Material Figure 22: Tue023



Supplementary Material Figure 23: Tue24



Supplementary Material Figure 24: Tue025