A Supplementary Material

A.1 Hierarchical Image Sampling

Level in hierarchy	Independant patches per patient	Number of positive pairs per patch
Patch	$n_s \cdot n_p$	n_a
Slide	n_s	$n_p \cdot n_a$
Patient	1	$n_s \cdot n_p \cdot n_a$

Table 1. Positive pairing for hierarchical contrastive objective n_s, number of slides sampled per patient, n_p, number of patches sampled per slide, n_a, number of augmentations performed on each patch.

A.2 Interpretability

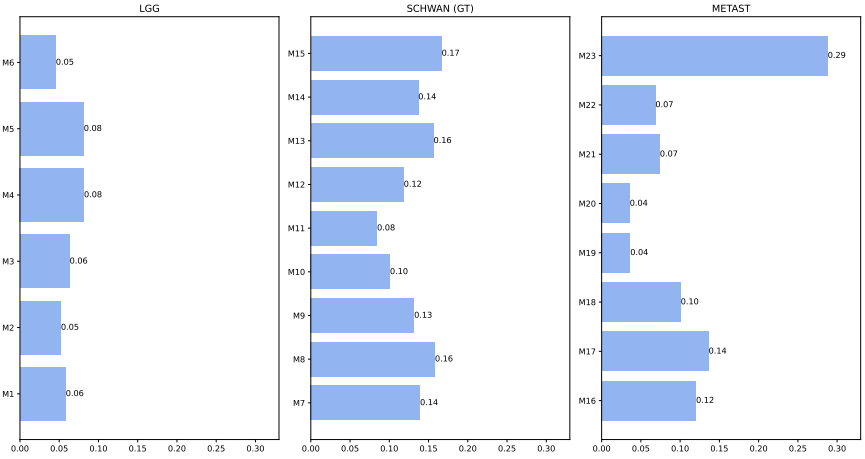

Fig. 1. Cosine similarity of a given sample representation with class specific cancer markers (M_i). Markers of the ground truth class (GT) are relatively more similar.

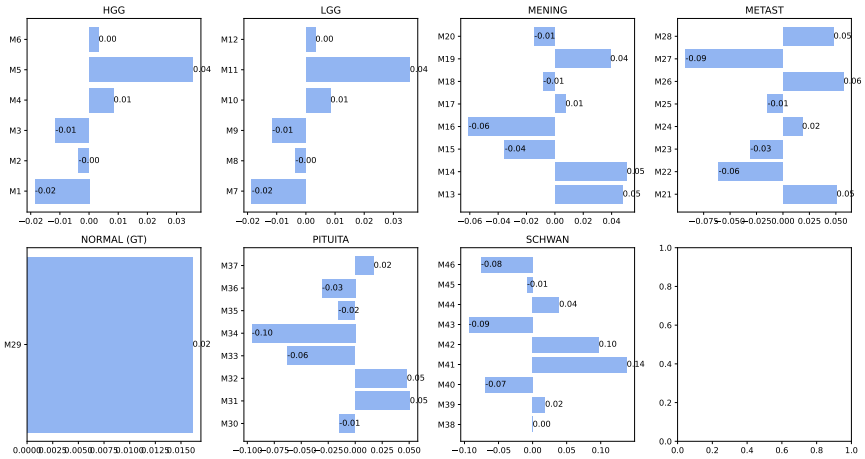

Fig. 2. Cosine similarity of a 'normal' tissue sample representation with class specific cancer markers (M_i) of all classes is illustrated. Observe how the representation doesn't align well with majority markers in any class.

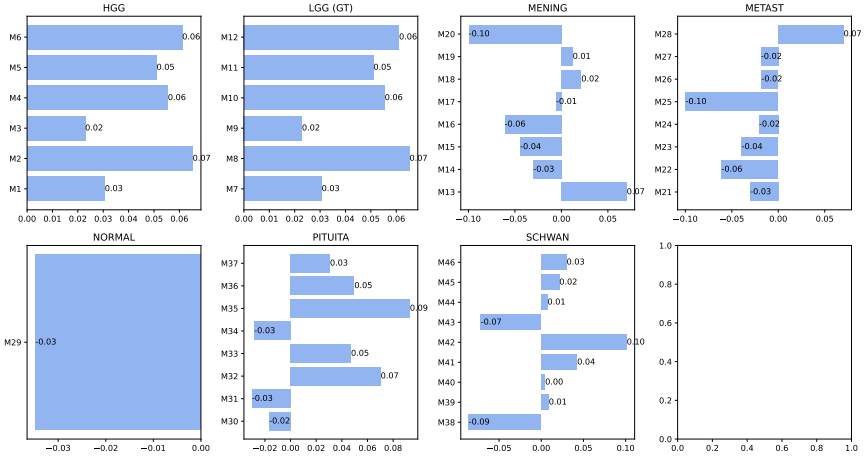

Fig. 3. Cosine similarity of a LGG (lower grade glioma) sample representation with class specific cancer markers (M_i). A proper alignment can only be seen in HGG & LGG classes as they both consider similar characteristics as per the markers we obtained from an expert histopathologist.