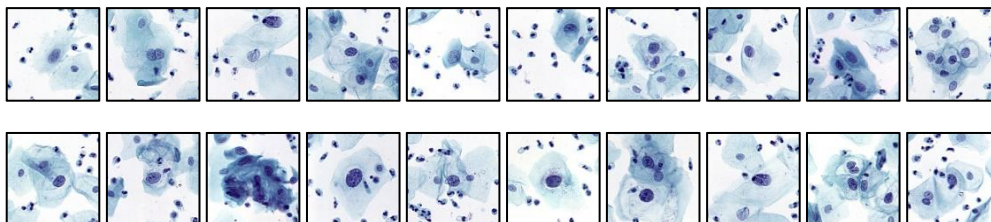


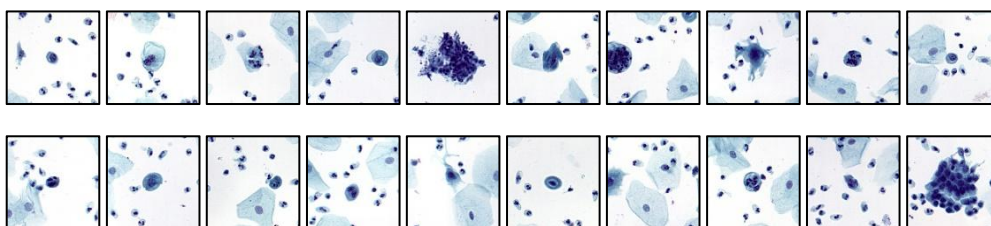
Here we list some examples of Top-k and Bottom-k patches in negative and positive WSIs as the qualitative result analysis.

**Positive WSIs (A&B), Negative WSIs (C&D):**

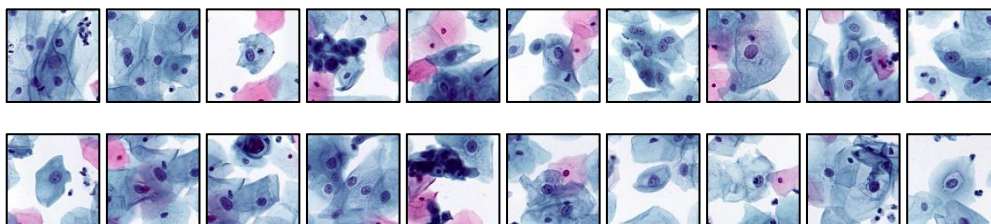
**(A) Top-20 patches:**



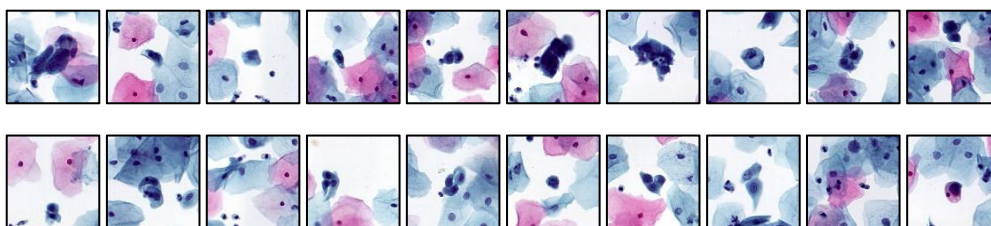
**Bottom-20 patches:**



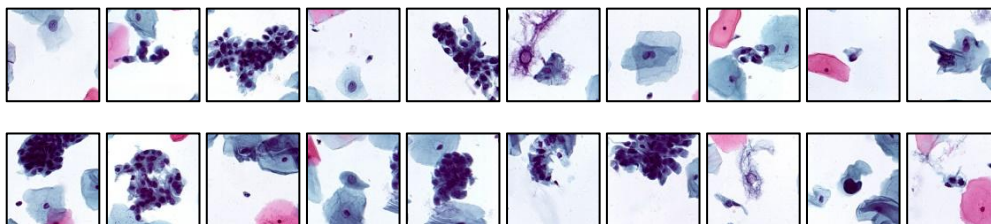
**(B) Top-20 patches:**



**Bottom-20 patches:**



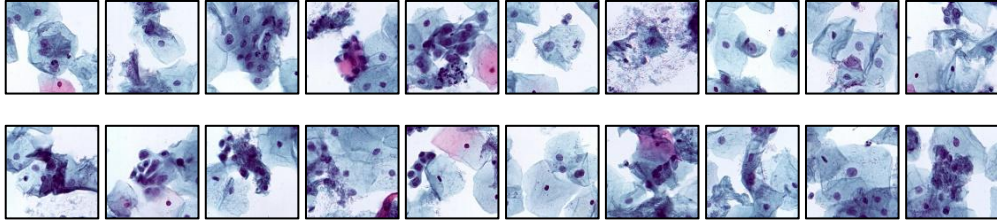
**(C) Top-20 patches:**



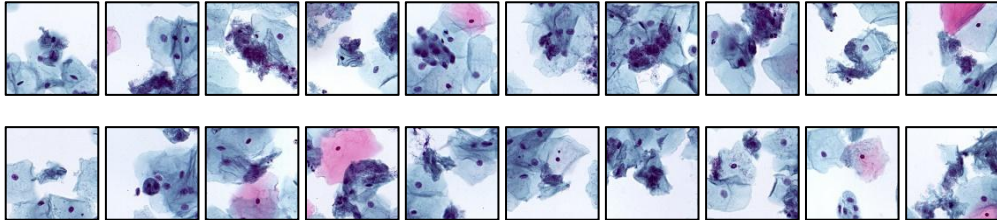
**Bottom-20 patches:**



**(D) Top-20 patches:**



**Bottom-20 patches:**



It can be observed that in positive WSIs (A&B), the karyoplasmic ratios of Top-20 patches are generally higher than that of Bottom-20 patches, while in negative WSIs (C&D), there are little difference in the karyoplasmic ratios between two groups of patches. So we can extract the features from two groups of patches and use contrastive learning to utilize the difference of negative and positive WSIs: enlarge the latent distance between Top-20 and Bottom-20 patches for positive WSIs and reduce the latent distance between Top-20 and Bottom-20 patches for negative WSIs.