To count the number of pixels belonging to DAB-stained nuclei, $N_D$ , we choose the following *(r,g,b)* intervals:

$$(<40 , 115> , <6 , 80> , <10 , 75>) \quad (6)$$

To calculate $N_H$ and $N_D$ the whole slide may be subdivided into any number of disjoint parts or even read into RAM pixel by pixel. It is important since it makes possible to analyze specimens even on a PC with 16 GB RAM. $N_H$ and $N_D$ are then used to calculate proliferation index $PI_C$ (2). For one specimen time necessary for calculations varied from about 50 seconds to about 7 minutes depending on the size of the whole specimen.

## 3 Results

We have calculated proliferation index $PI_C$ for 9 whole slides of DLBCLs and we juxtapose the results with proliferation index $PI_P$ evaluated for the same slides by a trained pathologist (Fig. 2.).

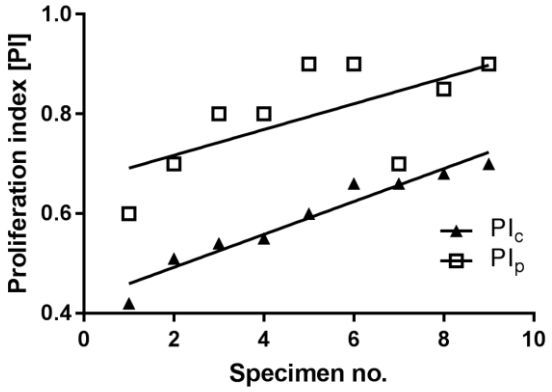


Fig. 2. Proliferation indices $PI_c$ and $PI_p$ for 9 specimens.

The ranges of $PI_C$ for whole slides and of $PI_P$ evaluated for these slides by pathologist are comparable - *0.28 vs. 0.30* - but absolute values of $PI_C$ are about *0.20* lower than corresponding values of $PI_P$. This difference is obvious since pathologist while visually evaluating a specimen tries to find hot-spots and $PI_P$ takes its highest values locally just for the hot-spots. The calculated $PI_C$ and the $PI_P$ evaluated by pathologist change concurrently i.e. if for a given case $PI_P$ is equal or greater than for another case then also $PI_C$ computed for the given slide is equal or greater than that for the other case. Statistics shows that correlation coefficient of $PI_C$ *vs* $PI_P$ is equal *0.71*. Only one specimens behaves not in agreement with this rule. The most important is that calculated $PI_C$ still shows that these are high grade DLBCLs.

## 4 Conclusions

CFPP method of calculating proliferation index $PI_C$ for grading DLBCL neoplasms from stained histological slices is quick and simple (cf. [7]). It gives the results that well correlate with proliferation index $PI_P$ estimated by a trained pathologist. The method is much simpler and much less time consuming than the methods that try to emulate pathologist's way of thinking when estimating $PI_P$. Of course, medical decision still remains to be made by a pathologist, but such a quick computer-assisted grading of DLBCLs may be quite helpful in diagnosis. By appropriate changing of color filtration thresholds CFPP method may be adapted to analysis of other problems in digital pathology.

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