

Diff Quik Stains

Diff Quik (DQ) stains are commonly used in practice to examine blood smears and cytology samples. It is a three-step system using methanol as a fixative followed by an orange/eosinophilic solution then a blue/basophilic solution.

Note that samples should not be stained until they are completely dry.

Staining qualities of cells using Diff Quik

| Cell | Colour of staining |
|---------------------|------------------------------------|
| RBC | Grey |
| Reticulocytes | Blue to mauve or grey [†] |
| Leukocyte nuclei | Dark purple |
| Neutrophil granules | Colourless |
| Eosinophil granules | Pink to orange |
| Basophil granules | Blue to grey |

[†] some RBCs which have mature colour are actually reticulocytes so you can't estimate a reticulocyte count from the number of polychromatophils that are present

Using Diff Quik stain

Quickly dip the slides in the fixative and each of the orange and blue solutions six times to obtain even staining. Dipping a smear once and holding it in place for 10-15 seconds typically results in poorer, and often patchy staining. Follow up with dipping in water or running under gently flowing tap water.

Maintain two sets of stains, one for clean samples such as blood smears and cytologies and one for dirty samples such as ear smears and skin scrapes.

If smears are too pale on examination then they can be re-dipped into the orange and blue stains provided that there is no oil on the slide. If cells can be seen but nuclear detail is poor additional dips in the blue stain can help. Staining quality improves but is not as good as getting it right the first time.

Storing Diff Quik stains

Keep a lid on the solutions to prevent evaporation of the methanol and dust/debris contamination of all three stain components.

Stains exposed to direct sunlight will lose pigment resulting in pale smears.

When to change the Diff Quik

Change the stain when the smears become too pale or if there is a lot of stain precipitate on your slides. Under ideal storage conditions stains will last for about 50 smears before there is a noticeable difference in stain quality.

Staining Quality

DQ may not stain mast cell granules or toxic granulation in neutrophils, although there are usually at least a few cells containing these granules to clue you in.

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