NORDIC BIOMARKER

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What is the Difference between Blue and Red D-dimer?

The main difference between Blue and Red D-dimer is the size of latex micro-particles used to produce them. The light-scattering properties of micro-particles depend mainly on two variables: the size of the particles and the wavelength of the light. A small particle would not work well at long wavelengths, whereas a large particle would behave poorly at shorter wavelengths. Therefore, to cover most analyzer available on the market, Nordic Biomarker has developed the two different D-dimer reagents to include most coagulation and clinical chemistry analyzers available on the market today.

Almost all analyzers on the market have the wavelength 405 nm as an option. Larger analyzers may have several other optical channels to choose from too, but they will probable always have 405 nm. Smaller semi-automatic coagulation analyzers may have 405 nm as the only option. For this reason, Nordic Blue D-dimer is designed to work well at 405 nm. Depending on the cuvettes used, it also works well at somewhat longer wavelength, e.g. 540 nm. With much longer wavelengths, however, the performance of Blue D-dimer will be poor due to the weak light-scattering properties.

Why, then, develop another D-dimer product, such as Red D-dimer, at all? If almost all analyzers do actually have 405 nm as an option, why not just run Blue D-dimer on all of them? The answer is interfering substances. To get enough D-dimer in the cuvette for the latex immunoassays to function properly, a relatively large amount of plasma sample is needed. Along with the D-dimer in the plasma also come any present interfering substances like, for instance, hemoglobin, billirubin and lipids. These are the most common interfering substances on plasma, and they interfere with the latex immunoassays simply by absorbing light. At low wavelength, such as 405 nm, the absorbance from these interfering substances is very high. Sometimes high enough to cause instrumental errors, which will result in extra testing and investigations for such plasma samples.

Nordic Red D-dimer operates at higher wavelengths, typically around 700 nm, where the common interfering substances mentioned are not a problem. Therefore, if you have an instrument in your laboratory that is capable of running at these higher wavelengths you should choose Red D-dimer.

If you instrument is only capable of running at e.g. 405 nm, Nordic Blue D-dimer is a good choice, but you should be aware of the potential problems arising from the interfering substances.