

ALCOR Scientific, Inc. is the developer and manufacturer of the *iSED*[®] fully automated ESR Analyzer.

The *iSED*[®] has been shown to have excellent correlation to the CLSI Approved Standard methodology, based on the Westergren ESR test method. In a study which included 300 patient samples spanning the assay range, the resulting correlation was 0.96.

The *iSED*[®] data (n=300) yielded a slope of (1.00 -1.10) with an intercept of (-3.36 – 1.00) which resulted in a mean bias of -1.35 in the Passing and Bablock regression analysis compared to the Approved Standard method.

With controlled mixing, a temperature controlled reading chamber, and requiring only 100µL of whole blood to perform the test, it provides accurate and consistent readings on unrefrigerated blood up to 24 hours after collection.

iSED[®] uses advanced Rheology Technology. It captures the impact of the most critical phase in the phenomenon of RBC sedimentation, the so-called Rouleaux formation. This is the critical phase of ESR because the size of the red blood cell aggregates is directly proportional to the ESR values which increase according to the presence and intensity of inflammation. The technical innovation of the *iSED*[®] consists of measuring **directly** the aggregation of the red blood cells while the traditional ESR methodologies measure **indirectly** the aggregation of the red blood cells.

After measuring the aggregation directly, the *iSED*[®] produces ESR results in mm/hr. Utilizing EDTA blood from the primary tube, results are reported within seconds. The *iSED*[®] is less affected by variables commonly associated with traditional ESR testing, the most important of which is the **hematocrit**. This explains the differences sometimes observed during a comparison with Westergren or modified Westergren methodology.

There are various approaches to quantifying RBC aggregation including erythrocyte sedimentation rate (ESR), centrifugation methods (e.g., zeta sedimentation ratio), microscopic methods including computerized image analysis techniques, low shear viscometry, ultrasound imaging, monitoring electrical properties and analysis of light transmission or reflection of RBC suspensions.

RBC aggregation measurement based on sylectometry, as performed by the *iSED*[®], is a fast, accurate and reliable approach and has been utilized in laboratory devices developed as alternatives to the conventional methods of measuring ESR. RBC aggregation indices obtained by sylectometry have been proven to be useful in monitoring the acute phase response and inflammatory processes, and offer the potential to be used as point-of-care devices for monitoring inflammation. ¹

¹Baskurt, Oguz K., and Meiselman, Herbert J., Erythrocyte aggregation: Basic aspects and clinical importance. *Clinical Hemorheology and Microcirculation* 53 (2013) 23-37