

## Aggregation & Dis-aggregation

### Methodology

- Measurement of optical light reflection & intensity of RBC, while in shear rate

### Condition

- Shear rate with STOP in time

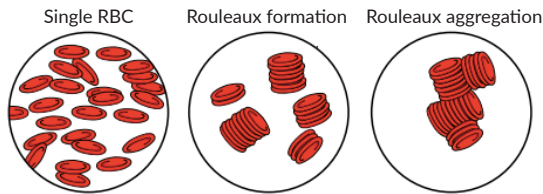
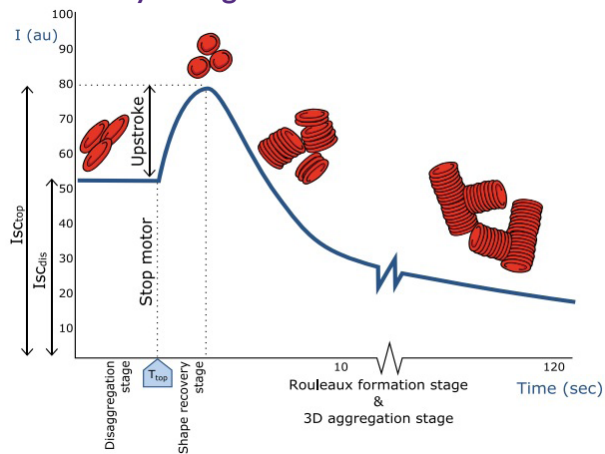


Fig.4 At low shear stress, RBC form larger stacks (rouleaux), followed by side-to-end formation of 3D-aggregates

### RBC Sylectogram



### Research fields:

- Blood storage
- Blood quality; defining optimum shear rate for RBC to aggregate (by iteration)
- Malaria, RBC Parasites

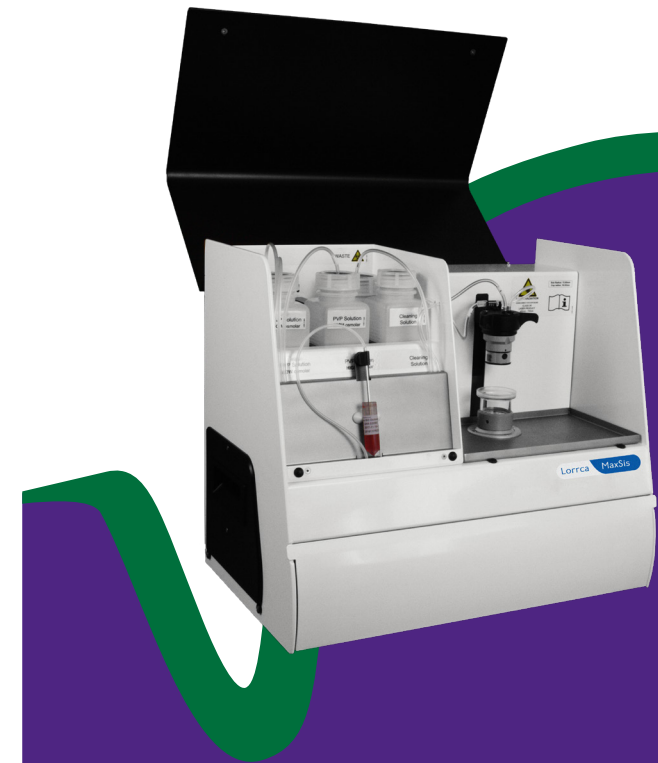
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## Elongation/Deformability

### Methodology

- Measurement of laser diffraction pattern of RBC, while in shear stress

### Condition

- Shear stress, in specified viscosity

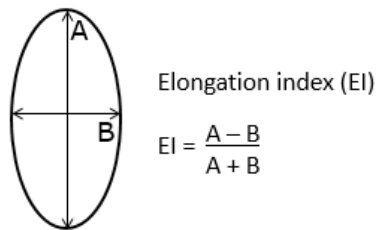
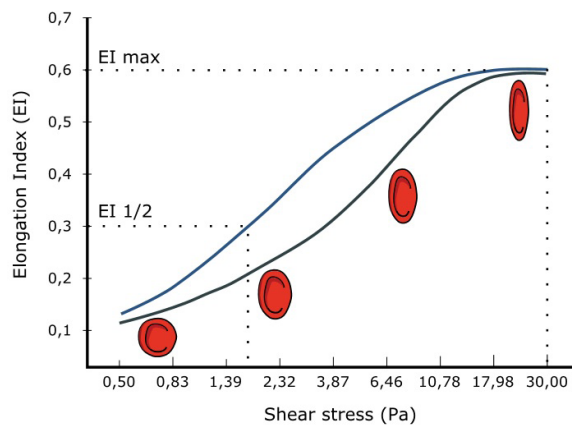


Fig.1 Change in Elongation Index (EI) with applied shear stress

## RBC Deformability



### Research fields:

- Membrane disorders RBC; Spherocytosis
- Enzyme deficiencies; G6PD
- Storage, Lesion, RBC Rejuvenation
- Sepsis, Oxidative stress

## Osmoscan

### Methodology

- Measurement of laser diffraction pattern of RBC, while in shear stress

### Condition

- Shear stress, in specified viscosity, in osmolality gradient

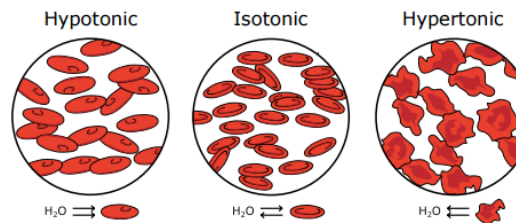
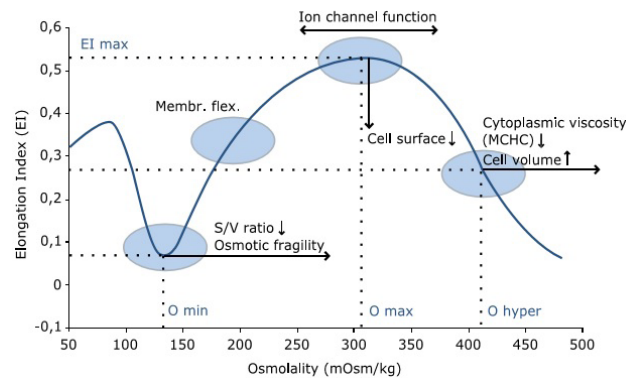


Fig.2 Cell condition under different osmotic values

## RBC Osmoscan



### Research fields:

- Hereditary anaemias
- Membrane disorders; Spherocytosis
- Enzyme deficiencies; G6PD
- Thalassemia
- Sickle Cell Disease

## OxygenScan

### Methodology

- Measurement of laser diffraction pattern of RBC, while in shear stress

### Condition

- In shear stress, in specified viscosity, in  $pO_2$  - gradient

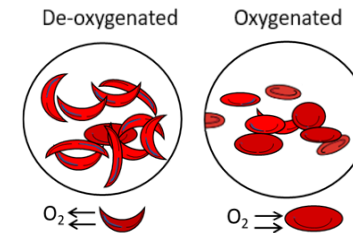
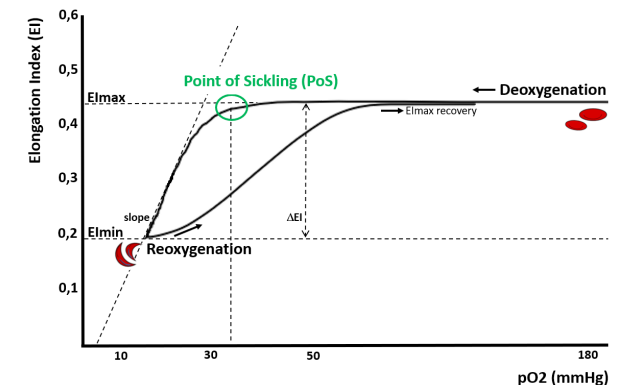


Fig.3 Cell condition under different oxygen conditions

## RBC OxygenScan



### Research fields:

- Sickle Cell Disease; defining the individual sickling susceptibility and treatment monitoring