# Red Blood Cell Inclusions

<table>
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<tr>
<th>Inclusion</th>
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</table>
| Howell-Jolly body             | Dark blue to purple  | Round to oval; 1 µm; usually 1 per cell, may be multiple; composed of DNA  | • Splenectomy  
• Hyposplenism  
• Megaloblastic anemia  
• Hemolytic anemia   | ![Image](image_url) |
| Basophilic stippling          | Dark blue to purple  | Fine or coarse granules; numerous per cell with fairly even distribution; composed of RNA | • Lead intoxication  
• Thalassemia  
• Abnormal heme synthesis | ![Image](image_url) |
| Pappenheimer bodies           | Light blue           | Fine irregular granules in clusters; usually one cluster per cell, may be multiples; often at periphery of cell; composed of iron | • Splenectomy  
• Hemolytic anemia  
• Sideroblastic anemia  
• Megaloblastic anemia  
• Hemoglobinopathies | ![Image](image_url) |
| Cabot ring                    | Dark blue to purple  | Loop, ring, or figure eight; may look like beads on a string; 1-2 per cell; thought to be remnants of mitotic spindle | • Myelodysplastic syndrome  
• Megaloblastic anemia | ![Image](image_url) |
| Reticulocyte—stained with new methylene blue | Dark blue  | Anuclear immature erythrocyte; ≥2 per cell; composed of precipitated RNA | Erythrocyte maturation | ![Image](image_url) |
| Heinz bodies—stained with new methylene blue | Dark blue to purple  | Mature erythrocyte; single or multiple per cell, generally membrane bound; composed of precipitated hemoglobin | • Unstable hemoglobin  
• Some hemoglobinopathies  
• Some erythrocyte enzyme deficiencies (e.g., G-6-PD) | ![Image](image_url) |

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