

Basophils

Interpretive Summary

Description: Basophils are white blood cells that are associated with parasitic, neoplastic, and allergic conditions.

Decreased Basophils

Common Causes

- Normal (some reference intervals include zero)

Increased Basophils

Common Causes

- Parasitic infections: ectoparasites and endoparasites
- Hypersensitivity responses
 - Asthma
 - Eosinophilic granuloma complex
 - Allergic dermatitis/ atopy
 - Food allergies
 - Eosinophilic gastroenteritis
 - Allergic rhinitis/sinusitis

Uncommon Causes

- Infectious: viral, bacterial, fungal, protozoal
- Neoplasia
 - Mast cell neoplasia
 - Lymphoma
 - Carcinoma
 - Basophilic leukemia
 - Lymphomatoid granulomatosis
 - Polycythemia vera

Related Findings

- Parasitic infections
 - Positive skin scrapings for ectoparasites
 - Positive fecal tests (fecal ova & parasites, Baermann test, or fecal sedimentation) for parasite eggs or larvae
 - Positive heartworm testing (serology for antigen or antibody, microfilaria testing)
- Hypersensitivity responses
 - Asthma
 - Bronchial pattern on thoracic radiographs
 - Eosinophilic and neutrophilic inflammation found on transtracheal or endotracheal wash
 - Eosinophilic granuloma complex
 - Histopathology supportive of eosinophilic granuloma complex
 - Allergic dermatitis/atopy
 - Abnormalities on skin allergy testing
 - Histopathology supportive of allergic dermatitis
 - Food allergies/eosinophilic gastroenteritis
 - Gastrointestinal biopsies showing eosinophilic inflammation
 - Gastric and/or intestinal wall thickening found on abdominal ultrasound

- Abnormal serum folate and cobalamin
 - Allergic rhinitis/sinusitis
 - Lymphoplasmacytic or eosinophilic inflammation on nasal biopsies
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Additional Information

Physiology

- Basophils are typically present in low numbers in mammals
- The granules of basophils are round and stain metachromatically (purple) although the intensity varies by species.
- Mature basophils in cats have very lightly staining granules.
- Granules are abundant in most species except for the dog.
- The most prominent constituents of basophil granules are histamine and heparin.

Diagnostic Methodology

- The basophil percentage (or relative basophil count) is the number of basophils (typically per 100 to 200 white blood cells) and is reported as a percentage.

References

- Latimer KS, Mahaffey EA, Prasse KW, eds. *Duncan and Prasse's Veterinary Laboratory Medicine: Clinical Pathology*, 4th ed. Ames, IA: Blackwell; 2003.
- Stockham SL, Scott MA. *Fundamentals of Veterinary Clinical Pathology*, 2nd ed. Ames, IA: Blackwell; 2008.

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