# Immunology and Hematology: A Comprehensive Clinical Update

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## Immunology and Hematology: A Comprehensive Clinical Update Agenda

<table>
<thead>
<tr>
<th>Module</th>
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| Module 1 | Immune Thrombocytopenia  
- Describe recent advances in the understanding of ITP pathogenesis  
- Develop a diagnostic plan for a thrombocytopenic patient to confirm an ITP diagnosis  
- Develop an appropriate therapeutic plan for ITP patients, individualizing therapy based on disease severity | Dr. Dana LeVine |
| Module 2 | Immune-Mediated Hemolytic Anemia  
- Explain how immunodiagnostic testing can be optimized for diagnosis of IMHA in dogs  
- Evaluate the pros and cons of different immunosuppressive regimens for treatment of IMHA  
- Design a rational plan for antithrombotic treatment in dogs with IMHA according to clinical need | Dr. James Swann |
| Module 3 | Feline Immune-Mediated Diseases  
- Describe the clinical features of major immune-mediated diseases of cats  
- Explain how immunodiagnostic testing should be adapted for diagnosis of immune-mediated diseases in cats  
- Assess pharmacokinetic and pharmacodynamic factors that influence effective delivery of immunosuppressive drugs in cats | Dr. James Swann |
| Module 4 | Immunosuppression: Overview and Management of Immune-Mediated Diseases  
- Better understand immunosuppressive therapies and how they can be successfully used for the treatment of immune-mediated disorders  
- Recognize how to assess the response of patients to immunosuppressive therapy, and when and how to make dose adjustments | Dr. John Thomason |
| Module 5 | Advanced Therapies for Immune-Mediated Diseases: TPE  
- Understand the mechanisms of plasma exchange, the necessary equipment, and the challenges to patient safety during treatment  
- Recognize which diseases may benefit from therapeutic plasma exchange, which patients would benefit from referral, and understand the common treatment schedules | Dr. JD Foster |
### Module 6
Group Panel Discussion/Q&A: Optimizing Patient Management for Immune-Mediated Hematologic Diseases
- Recognize the benefits and drawbacks of tests available for diagnosing immune-mediated hemolytic anemia in dogs and cats
- Recognize gaps in our knowledge regarding optimal immunomodulatory therapy for canine and feline immune-mediated diseases
- Understand the application of advanced therapies, such as total plasma exchange, for treatment of immune-mediated disease

Dr. Shauna Blois, Dr. JD Foster, Dr. Dana LeVine, Dr. James Swann, Dr. John Thomason

### Module 7
Bone Marrow Disorders: Part I
- Recognize the normal structure of trabecular bone marrow, including non-hematopoietic elements in bone marrow that support hematopoiesis
- Outline the maturational stages of hematopoiesis
- Describe the dynamics of white blood cell, red blood cell and platelet responses to peripheral demands
- Recognize the cellular targets of hematopoietic growth factors in clinical use and the physiological response

Dr. Dorothee Bienzle

### Module 8
Bone Marrow Disorders: Part II
- List the diagnostic features and causes of hematopoietic insufficiency, including toxic, infectious and nutritional etiologies
- Explain differences in clinical presentation and diagnostic features of myeloid and lymphoid leukemia
- Define the key diagnostic features of acute leukemia, myelodysplastic syndrome and myeloproliferative neoplasms
- Recognize the indications and utility of ancillary tests such as flow cytometry, immunohistochemistry and PARR to investigate bone marrow diseases

Dr. Dorothee Bienzle

### Module 9
The CBC Cytogram in Immune-Mediated Hemolytic Anemia and Immune-Mediated Thrombocytopenia – Presented by IDEXX
- Understand technology of advanced hematology analyzers
- Understand cytograms in the diagnosis and management of IMHA and ITP
- Understand cytogram appearance in other cytopenia cases

Dr. Heidi Peta, Dr. Kim Yore

### Module 10
Infectious Hematologic Disorders: Part I – Understanding and Diagnosing Infectious Causes of Immune-Mediated Diseases
- Integrate pathophysiologic principles of how infection may cause immune-mediated disease into the way you think about diagnosing and treating immune-mediated hematologic disease
- Recognize common infectious causes of immune-mediated hematologic disease
- Optimize diagnostic testing for vector-borne disease in patients with immune-mediated hematologic disease

Dr. Linda Kidd
| Module 11 | Infectious Hematologic Disorders: Part II – Case Management in Immune-Mediated Diseases with Possible Infectious Diseases
- Determine when to use immunosuppressive therapies in dogs and cats when the underlying disease process has not been established as either infectious or immune-mediated
- Determine how to react to a patient that has received immunosuppressive and developed a secondary infection | Dr. John Thomason |
| --- | --- | --- |
| Module 12 | Transfusion Medicine
- Determine when crossmatching is appropriate
- Recognize the varying situations in which plasma product transfusions may, or may not, be helpful
- Evaluate whether storage lesions should affect clinical practice decisions | Dr. Karen Humm |
| Module 13 | Group Panel Discussion/Q&A: Challenges in the Diagnosis and Management of Hematologic Diseases
- Recognize the benefits and limitations of bone marrow testing in the diagnostic approach to hematologic disease
- Identify features of the CBC cytogram that aid in the diagnosis of immune-mediated hematologic disease
- Recognize how to manage patients with immune-mediated disease when infections have not been ruled out
- Describe best practices for safe and effective blood transfusions in patients with immune-mediated hematologic disease | Dr. Dorothee Bienzle, Dr. Shauna Blois, Dr. Karen Humm, Dr. Linda Kidd, Dr. John Thomason |
| Module 14 | Overview of Hemostasis
- Relate the cascade model of coagulation to interpretation of clotting time tests and coagulation factor assays
- Understand how the cell-based model of coagulation integrates the role of platelets and coagulation complex assembly in promoting clot formation and explains the action of new oral anticoagulant drugs
- Apply the clot lifespan model to evaluate fibrinolytic pathways and interpret viscoelastic test | Dr. Marjory Brooks |
| Module 15 | Case Studies in Hypercoagulability
- Identify patient risk factors for hypercoagulability and thromboembolic complications
- Select and interpret diagnostic results for patients with suspected hypercoagulability or thromboembolic disease
- Develop appropriate treatment and monitoring plans for patients with hypercoagulability and thromboembolic disease | Dr. Shauna Blois |
## Module 16: Case Studies in Hypocoagulability

- Develop a diagnostic and treatment plan for hemorrhagic defects
- Select and interpret appropriate ancillary diagnostic tests for definitive diagnosis of hemostatic disorders
- Become familiar with new therapies for patients with complex primary, secondary, and tertiary hemostatic defects

**Dr. Marjory Brooks, Dr. Dana LeVine**

## Module 17: Group Panel Discussion/Q&A: Hemostasis

- Recognize challenges in the diagnosis of hemostatic disorders
- Understand how to approach the diagnosis and treatment of hypercoagulability and thrombosis
- Understand how to approach the diagnosis and treatment of hypocoagulability

**Dr. Shauna Blois, Dr. Marjory Brooks, Dr. Karen Humm, Dr. Dana LeVine**