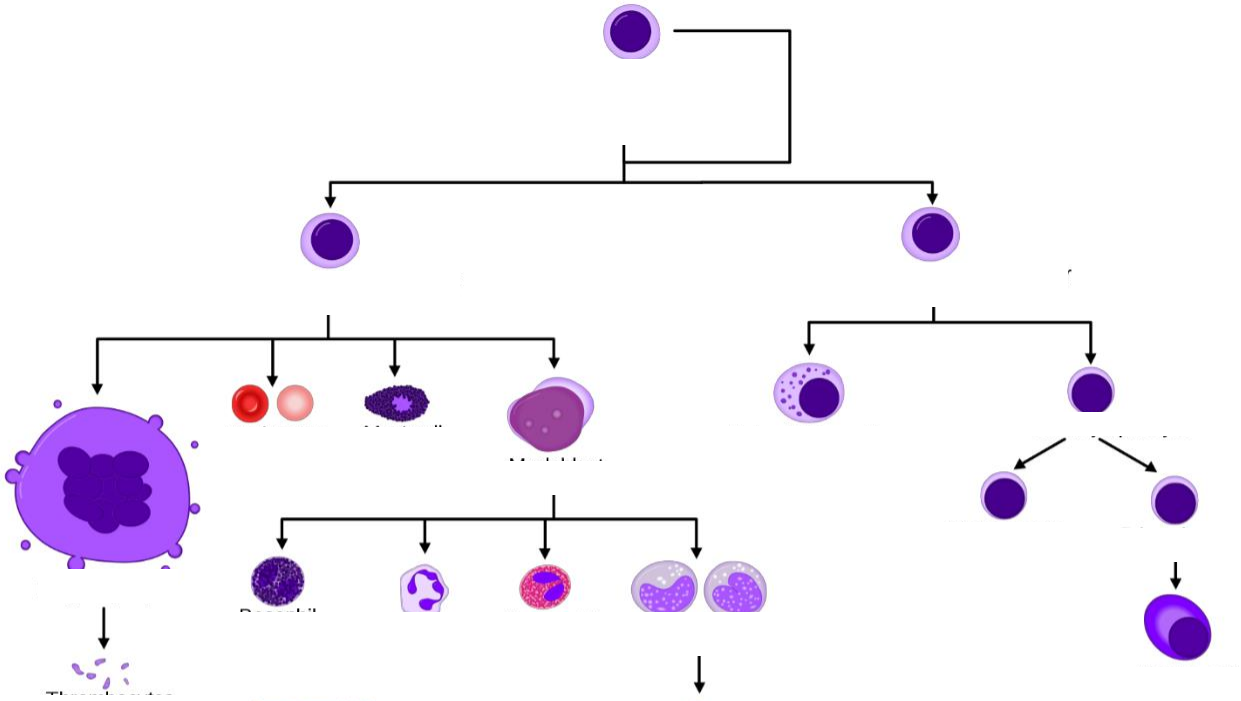
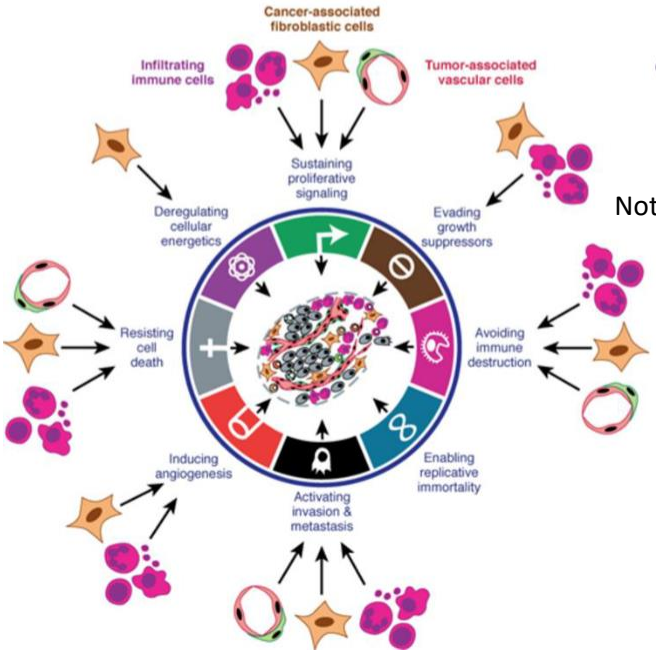
AHD: Hematologic Malignancy

Hematopoietic Stem Cell Map

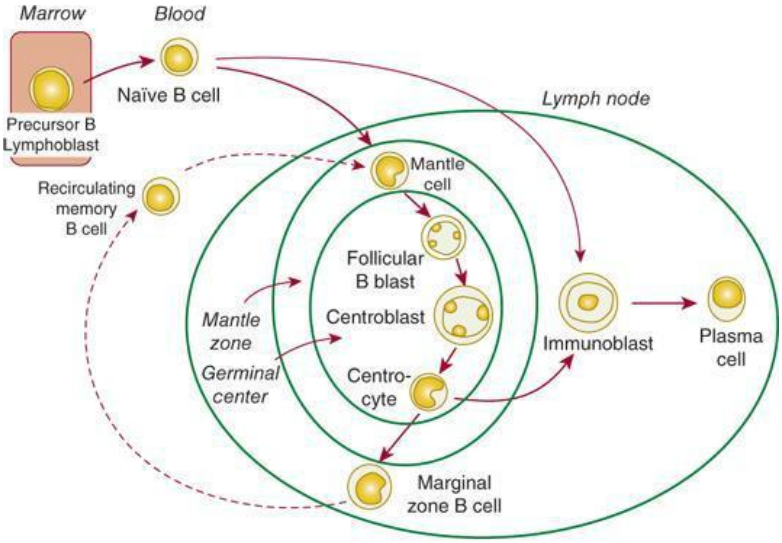


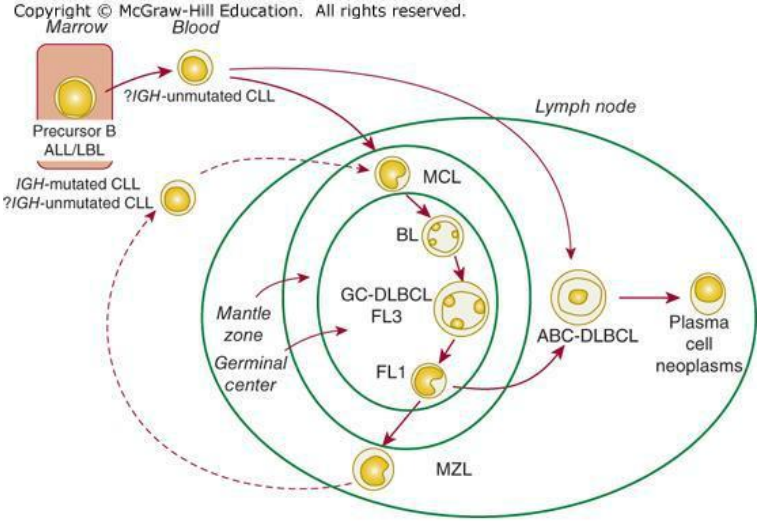


Notes:

Lymphocyte Maturation

Notes:





Questions to lead the physiology exercise

Objective: derive the symptoms and lab abnormalities from the physiology, we are lesion localizing!

1. **Have them fill out the chart with the names, make sure to stress the different lineages of lymphoid and myeloid cells**
2. **What the common pathophysiology amongst all the hematologic malignancies at the most basic level?**

3. **There is a "lesion" in the pathway near the common myeloid progenitor cell, it is a (9;22) translocation creating an endless activated tyrosine kinase (BCR-ABL) resulting in unchecked reproduction. What would you expect on a CBC?**

4. **What clinical complications do you expect from this? Symptoms? Physical Exam?**

5. **How many blasts should you see in CML?**

6. **Using the chart, how are Polycythemia Vera, Essential Thrombocytosis, and Primary Myelofibrosis similar and different?**

7. **Knowing that all these diseases have a common general pathophysiology, how do we make sense of a disease that presents with a worsening macrocytic anemia from a pathophysiology perspective? (where and what kind of lesion do we look for?)**

8. **What would happen if there was another mutation and the myeloblasts could no longer mature?**

9. **Special case: In AML subset of APML, you have promyelocytes that can't differentiate, we have a medicine that can cause them to differentiate, what is it?**

10. **Based on the natural life of a neutrophil/myelocyte, what complications could you expect to see after giving ATRA?**

11. **What could you see on a CBC during a blast crisis?**

12. **What happens if you have high levels of blasts? Upwards of 100k**

13. **Why do you not get hyperleukocytosis as often with lymphocyte malignancies?**

14. **What does a B-cell do after it is made in the bone?**

15. **Lesion localize the lymphomas**

16. **What do you need to diagnose lymphoma diagnostically?**

17. **Based on the areas they are in, and the level of reproduction, try to predict which are characterized as "aggressive" and which are "indolent"**

18. **Returning to the most common leukemia – Chronic Lymphocytic Leukemia – what are some complications we could expect?**

Mini Cases

1. **Patient is a 62 y/o M with a history of smoking, HTN, HLD, and DMII who presents to clinic with worsening fatigue over the last few months.** What is your differential? What additional history do you want? Physical exam? Labs? Other testing?

2. **Patient is a 68 y/o Vietnam Vet who presents to the VA with shortness of breath, productive cough, fevers and chills. CXR showed left lower lobe consolidation.** What is your differential? What additional history do you want? Physical exam? Labs? Other testing?

3. **Patient is a 72-year-old with a history of CLL, COPD, CAD, and HTN who presents to the ED with worsening shortness of breath and fatigue over the last week.** What is your differential? What additional history do you want? Physical exam? Labs? Other testing?

4. **Patient is a 82 y/o male with a history of MDS who presents to the ED with worsening severe fatigue, and new purple spots on his arms and legs. He has also noticed a new headache and blurry vision. His temp is 101.2. He is ill appearing, pale, and tachycardic to the 130's. You**

obtain a CBC with diff and BMP in office and decide to admit him to the hospital emergently for further evaluation.

Questions: which slide is normal, which is AML, which is APML, which is CLL, and which is CML

What are some of the complications of this diagnosis?

5. **Patient is a 67 y/o with CLL who presents to clinic for routine follow up. What questions do you want to ask the patient about their CLL? What are the general indications for treatment?**