

The People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
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TD 01 – Molecular & Cellular Immunology

Exercise 1: True or False Statements

- ☐ The thymus enlarges with age.
- ☐ Bone marrow produces and matures T lymphocytes.
- ☐ The spleen contains red pulp and white pulp.
- ☐ Lymph nodes filter blood directly.
- ☐ MALT includes Peyer's patches and tonsils.
- ☐ B cells and T cells are both formed in the thymus.
- ☐ Lymphatic sinuses are found in lymph nodes.

Exercise 2:

I) a patient presents with recurrent viral infections. Immunological analysis reveals a marked reduction in T lymphocytes but normal levels of B lymphocytes.

Questions:

- a) Which lymphoid organ is most likely affected?
- b) Explain how the pathology of this organ leads to the patient's symptoms.
- c) Suggest a diagnostic test to confirm your hypothesis.

II) a 45-year-old patient shows painless swelling in the neck lymph nodes and night sweats. A biopsy reveals abnormal lymphocyte proliferation.

Questions:

- a) Which disease is suspected?
- b) Which type of cells are proliferating?
- c) Suggest one confirmatory test.

Exercise 3: "Cause and Effect" Reasoning Chains

predict the sequence of immunological consequences.

Event 1: Thymic aplasia → ?

Event 2: Splenectomy → ?

Event 3: Blocked lymphatic vessel → ?

Event 4: ↓ Hematopoiesis → ?

Event 5: ↓ new T-cell output → ?

Event 6: ↓ antigen sampling in gut → ?

Event 7: Defective positive/negative selection → ?

Exercise 4: Who am I?

1. “I am both red and white,
I guard blood with all my might,
If you lose me, infections may bite —”
2. “No capsule hides me,
I live in your gut and throat,
I fight silently —”
3. “I live inside your bones, but I’m not hard.
I give birth to all immune cells.
In me, B cells grow up before traveling elsewhere —”
4. “I filter lymph, not blood.
I am shaped like a small bean.
Inside me, B and T cells meet antigens for the first time —”
- 5.