

"Dissemination of Education for Knowledge, Science and Culture"

-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur

(An Empowered Autonomous Institute)

Department of Zoology

Academic year: 2025-26

B.Sc. III (Major) Sem. VI

STUDENTS SEMINAR

(Date-01/01/2026-04/01/2026)



Academic Year: 2025- 2026

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B.Sc. III Semester VI Student Seminar

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Dr. G. K. Sontakke

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Department of Zoology
Academic year: 2025-26

Date: 02/12/2025

NOTICE

Subject: Student Seminar – B.Sc. III (Major Zoology), Semester VI

All students of B.Sc. III are hereby informed that, as a part of the curriculum and Continuous Internal Evaluation (CIE), every student must complete their seminar. Attendance and seminar submission are compulsory. The schedule for the seminars is given below. Students are instructed to follow the schedule strictly. At the time of the seminar, you must submit the Abstract of your seminar to the Zoology Department.

Sr. No.	Name of Paper	Date of Seminar	Teacher In-Charge
1	Immunology	01/01/2026	Mr. G. H. Fadake
2	Developmental Biology	02/01/2026	Dr. S. S. Desai
3	Aquatic Biology	03/01/2026	Dr. G. K. Sontakke
4	Reproductive Biology	04/01/2026	Ms. N. A. Patel


Dr. S. S. Desai
Coordinator


Dr. G. K. Sontakke
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Department of Zoology
B. Sc. III (Major) Semester VI
Academic Year: 2025-2026

Seminar Topic Distribution- Immunology

Sr. No.	Roll No.	Name of the Student	Topic Name	Signature
1.	8332	Adagale Paras Charudatta	Basic concepts in immunology	PARAS
2.	8333	Mahekar Pruthviraj Tatoba	Components of the immune system	PRUTH
3.	8334	Mane Pranoti Prakash	Innate immunity	PRANOTI
4.	8335	Mane Sangramsingh Sandip	Adaptive immunity	SANDIP
5.	8336	Momin Shireen Sajid	Haematopoiesis	AB
6.	8337	More Sanika Sanjay	Cells in the immune system	SSMOS
7.	8338	Nadaf Muskan Mohammad R.	Primary lymphoid organ	MUSKAN
8.	8339	Navale Rutuja Pradeep	Secondary lymphoid organ	RUVALE
9.	8340	Patil Anushka Rajgonda	Lymphoid tissues	ANUSHKA
10.	8341	Patil Gouri Vijay	Immune responses	AB
11.	8342	Patil Madhuri Sanjay	Antigens: Properties of antigens	MADHURI
12.	8343	Patil Sayali Ashok	B cell Epitopes	SAYALI
13.	8344	Patil Suhani Suraj	T cell Epitopes	SUHAN
14.	8345	Shirgave Rutuja Bajarang	Haptens and adjuvants	SHIRGAVE
15.	8346	Todkar Shravani Sanjay	Antibodies: Structure and function	SHRAVANI
16.	8347	Khot Vira Sachin	Antibodies types	VIRAKHOT
17.	8348	Bariya Avinaben Vinodbhai	Antigen-antibody interactions	AVINABEN
18.	8349	Kamble Ketan Keraba	Direct & Indirect ELISA	KETAN
19.	8350	Kamble Ratndip Rajaram	Sandwich & Competitive ELISA	RATNDIP
20.	8351	Powar Yash Mahadev	Hybridoma technology	YASH
21.	8436	Patil Dhananjay Anandrao	Monoclonal & Polyclonal antibodies	AB
22.	8461	Chavan sakshi madhav	Properties and types of vaccines	SAKSHI


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Academic Year: 2025-2026

Attendance of Seminar- Immunology

Sr. No.	Roll No.	Name of the Student	Signature
1.	8332	Adagale Paras Charudatta	PARAG
2.	8333	Mahekar Pruthviraj Tatoba	Mahekar
3.	8334	Mane Pranoti Prakash	Mane
4.	8335	Mane Sangramsingh Sandip	Mane
5.	8336	Momin Shireen Sajid	Ab
6.	8337	More Sanika Sanjay	Sanika
7.	8338	Nadaf Muskan Mohammad R.	Muskan
8.	8339	Navale Rutuja Pradeep	Navale
9.	8340	Patil Anushka Rajgonda	Anushka
10.	8341	Patil Gouri Vijay	AB
11.	8342	Patil Madhuri Sanjay	Patil
12.	8343	Patil Sayali Ashok	Patil
13.	8344	Patil Suhani Suraj	Patil
14.	8345	Shirgave Rutuja Bajarang	Shirgave
15.	8346	Todkar Shravani Sanjay	Todkar
16.	8347	Khot Vira Sachin	Vskhot
17.	8348	Bariya Avinaben Vinodbhai	Avinabi
18.	8349	Kamble Ketan Keraba	Ket
19.	8350	Kamble Ratndip Rajaram	Ratnkamble
20.	8351	Powar Yash Mahadev	Powar
21.	8436	Patil Dhananjay Anandrao	AB
22.	8461	Chavan sakshi madhav	Chavan


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Seminar Topic Distribution- Developmental Biology

Sr. No.	Roll No.	Name of the Student	Topic Name	Signature
1.	8332	Adagale Paras Charudatta	Introduction to Gametogenesis	<i>Paras</i>
2.	8333	Mahekar Pruthviraj Tatoba	Spermatogenesis	<i>Pruthviraj</i>
3.	8334	Mane Pranoti Prakash	Oogenesis	<i>Pranoti</i>
4.	8335	Mane Sangramsingh Sandip	Structure of mature egg	<i>Sandip</i>
5.	8336	Momin Shireen Sajid	Structure of sperm	<i>AB</i>
6.	8337	More Sanika Sanjay	Fertilization process	<i>Sanika</i>
7.	8338	Nadaf Muskan Mohammad R.	Prevention of polyspermy	<i>Muskan</i>
8.	8339	Navale Rutuja Pradeep	Cleavage	<i>Rutuja</i>
9.	8340	Patil Anushka Rajgonda	Blastula, gastrula, fate of germ layer	<i>Anushka</i>
10.	8341	Patil Gouri Vijay	Implantation	<i>AB</i>
11.	8342	Patil Madhuri Sanjay	formation of placenta and its functions	<i>Madhuri</i>
12.	8343	Patil Sayali Ashok	Gene activation	<i>Sayali</i>
13.	8344	Patil Suhani Suraj	Determination, Induction, Differentiation	<i>Suhani</i>
14.	8345	Shirgave Rutuja Bajarang	Morphogenesis	<i>Rutuja</i>
15.	8346	Todkar Shravani Sanjay	Intercellular communication	<i>Shravani</i>
16.	8347	Khot Vira Sachin	Cell movements	<i>Vira</i>
17.	8348	Bariya Avinaben Vinodbhai	Cell death	<i>Avinaben</i>
18.	8349	Kamble Ketan Keraba	Structure and functions of yolk sac	<i>Ketan</i>
19.	8350	Kamble Ratndip Rajaram	Structure of hen's egg	<i>Ratndip</i>
20.	8351	Powar Yash Mahadev	Origin and structure of primitive streak	<i>Yash</i>
21.	8436	Patil Dhananjay Anandrao	Structure of 18 & 24 chick embryos	<i>AB</i>
22.	8461	Chavan sakshi madhav	Structure of 33 and 48 hrs. chick embryos	<i>Sakshi</i>

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Date- 02/01/2026

Attendance of Seminar- Developmental Biology

Sr. No.	Roll No.	Name of the Student	Signature
1.	8332	Adagale Paras Charudatta	PARAS
2.	8333	Mahekar Pruthviraj Tatoba	Mahekar
3.	8334	Mane Pranoti Prakash	Mane
4.	8335	Mane Sangramsingh Sandip	Mane
5.	8336	Momin Shireen Sajid	AB
6.	8337	More Sanika Sanjay	More
7.	8338	Nadaf Muskan Mohammad R.	Muskan
8.	8339	Navale Rutuja Pradeep	Navale
9.	8340	Patil Anushka Rajgonda	Anushka
10.	8341	Patil Gouri Vijay	AB
11.	8342	Patil Madhuri Sanjay	Patil
12.	8343	Patil Sayali Ashok	Sayali
13.	8344	Patil Suhani Suraj	Suhani
14.	8345	Shirgave Rutuja Bajarang	Rutuja
15.	8346	Todkar Shravani Sanjay	Todkar
16.	8347	Khot Vira Sachin	Vsachin
17.	8348	Bariya Avinaben Vinodbhai	Avinaben
18.	8349	Kamble Ketan Keraba	Ketan
19.	8350	Kamble Ratndip Rajaram	Ratndip
20.	8351	Powar Yash Mahadev	Yash
21.	8436	Patil Dhananjay Anandrao	AB
22.	8461	Chavan sakshi madhav	Chavan


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Seminar Topic Distribution- Aquatic Biology

Sr. No.	Roll No.	Name of the Student	Topic Name	Signature
1.	8332	Adagale Paras Charudatta	Introduction of limnology	<i>Paras</i>
2.	8333	Mahekar Pruthviraj Tatoba	Freshwater ecosystem	<i>Mahekar</i>
3.	8334	Mane Pranoti Prakash	Estuaries	<i>Mane</i>
4.	8335	Mane Sangramsingh Sandip	Intertidal zones	<i>Mane</i>
5.	8336	Momin Shireen Sajid	Oceanic pelagic zone	<i>AB</i>
6.	8337	More Sanika Sanjay	Marine benthic zone	<i>More</i>
7.	8338	Nadaf Muskan Mohammad R.	Pond- Origin & Classification	<i>Muskan</i>
8.	8339	Navale Rutuja Pradeep	Physicochemical properties of pond	<i>Navale</i>
9.	8340	Patil Anushka Rajgonda	Thermal stratification in pond	<i>Anushka</i>
10.	8341	Patil Gouri Vijay	Types of streams	<i>AB</i>
11.	8342	Patil Madhuri Sanjay	Physicochemical environment of streams	<i>Patil</i>
12.	8343	Patil Sayali Ashok	Conservation of streams	<i>Patil</i>
13.	8344	Patil Suhani Suraj	Wetland: Types, classification	<i>Patil</i>
14.	8345	Shirgave Rutuja Bajarang	Properties of seawater	<i>Shirgave</i>
15.	8346	Todkar Shravani Sanjay	Coral & coral reefs: Types	<i>Todkar</i>
16.	8347	Khot Vira Sachin	Economic importance of Coral	<i>Vira</i>
17.	8348	Bariya Avinaben Vinodbhai	Continental shelf	<i>Bariya</i>
18.	8349	Kamble Ketan Keraba	Adaptations of deep-sea organisms	<i>Kamble</i>
19.	8350	Kamble Ratndip Rajaram	Estuaries: Definition, Classification	<i>Kamble</i>
20.	8351	Powar Yash Mahadev	Freshwater pollution- Causes	<i>Powar</i>
21.	8436	Patil Dhananjay Anandrao	Eutrophication	<i>AB</i>
22.	8461	Chavan sakshi madhav	Lake types	<i>Chavan</i>

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Attendance of Seminar- Aquatic Biology

Sr. No.	Roll No.	Name of the Student	Signature
1.	8332	Adagale Paras Charudatta	PARAS
2.	8333	Mahekar Pruthviraj Tatoba	
3.	8334	Mane Pranoti Prakash	
4.	8335	Mane Sangramsingh Sandip	
5.	8336	Momin Shireen Sajid	AB
6.	8337	More Sanika Sanjay	
7.	8338	Nadaf Muskan Mohammad	Muskan
8.	8339	Navale Rutuja Pradeep	
9.	8340	Patil Anushka Rajgonda	Anushka
10.	8341	Patil Gouri Vijay	AB
11.	8342	Patil Madhuri Sanjay	
12.	8343	Patil Sayali Ashok	Satish
13.	8344	Patil Suhani Suraj	
14.	8345	Shirgave Rutuja Bajarang	
15.	8346	Todkar Shravani Sanjay	Shravan
16.	8347	Khot Vira Sachin	Vsachin
17.	8348	Bariya Avinaben Vinodbhai	Avinab
18.	8349	Kamble Ketan Keraba	Ketan
19.	8350	Kamble Ratndip Rajaram	Ratndip
20.	8351	Powar Yash Mahadev	
21.	8436	Patil Dhananjay Anandrao	AB
22.	8461	Chavan sakshi madhav	Sachavan

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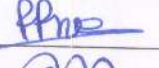
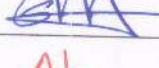
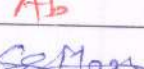
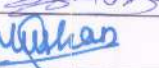
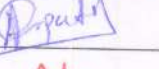
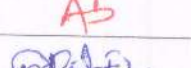
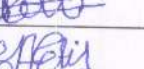
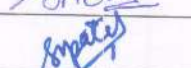
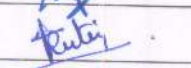
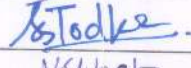
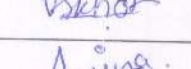
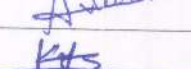
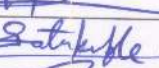
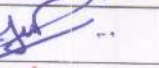
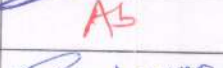
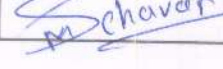
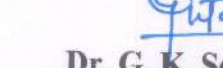
Seminar Topic Distribution- Reproductive Biology

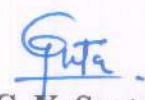
Sr. No.	Roll No.	Name of the Student	Topic Name	Sign.
1.	8332	Adagale Paras Charudatta	Reproductive hormones of the pituitary gland	Paras
2.	8333	Mahekar Pruthviraj Tatoba	Structure of female reproductive system	Pruthviraj
3.	8334	Mane Pranoti Prakash	Female sex hormones	Pranoti
4.	8335	Mane Sangramsingh Sandip	Menstrual cycle and hormonal regulation	Sandip
5.	8336	Momin Shireen Sajid	Diagnostic features of pregnancy	AS
6.	8337	More Sanika Sanjay	Parturition-Mechanism & hormonal regulation	Sanika
7.	8338	Nadaf Muskan Mohammad	Lactation- Mechanism & hormonal regulation	Muskan
8.	8339	Navale Rutuja Pradeep	Structure of male reproductive System	Rutuja
9.	8340	Patil Anushka Rajgonda	Histology of testis	Anushka
10.	8341	Patil Gouri Vijay	Male sex hormones	AS
11.	8342	Patil Madhuri Sanjay	Epididymal functions and sperm transportation	Madhuri
12.	8343	Patil Sayali Ashok	Infertility in Male	Sayali
13.	8344	Patil Suhani Suraj	Infertility in Female	Suhani
14.	8345	Shirgave Rutuja Bajarang	Sperm bank	Rutuja
15.	8346	Todkar Shravani Sanjay	Frozen embryos	Shravani
16.	8347	Khot Vira Sachin	Intrauterine Transfer (IUT)	Vira
17.	8348	Bariya Avinaben Vinodbhai	Zygote Intrafallopian Tube Transfer (ZIFT)	Avinaben
18.	8349	Kamble Ketan Keraba	Gamete Intrafallopian Transfer (GIFT).	Ketan
19.	8350	Kamble Ratndip Rajaram	Intracytoplasmic Sperm Injection (ICSI)	Ratndip
20.	8351	Powar Yash Mahadev	In vitro fertilization (IVF)	Yash
21.	8436	Patil Dhananjay Anandrao	Contraceptive Methods: Temporary	AS
22.	8461	Chavan sakshi madhav	Contraceptive Methods: Permanent	Sakshi Chavan


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Attendance of Seminar- Reproductive Biology

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1.	8332	Adagale Paras Charudatta	
2.	8333	Mahekar Pruthviraj Tatoba	
3.	8334	Mane Pranoti Prakash	
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17.	8348	Bariya Avinaben Vinodbhai	
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Presented by : Suhani Suraj Patil (B.Sc III)
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Seminar on (Immunology) **T Cell-Epitopes**



Delivered by –
Suhani Patil

B.Sc Part III (Semester VI)
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 Vivekanand College, Kolhapur (Empowered Autonomous)

What are Antigens?

- Any substance that the immune system recognizes as foreign and triggers a defensive response.
- They are usually foreign molecules, most commonly :
 1. Proteins
 2. Polysaccharides
 3. Glycoproteins

Can also be pollen (allergens) or own cells (autoantigens in autoimmune diseases)

- Examples : Pathogens, Allergens, Toxins

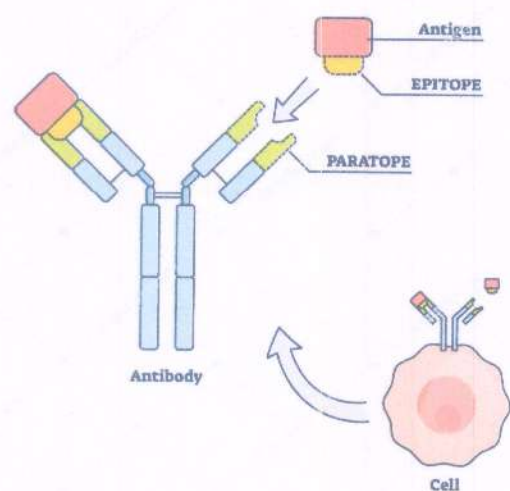
Epitopes

- Specific part of an antigen that is recognized and bound by antibodies, B-Cell receptors (BCRs) or T-Cell receptors (TCRs).
- Antigenic determinants
- One antigen can have many epitopes
- Types of epitopes

Based on immune component that recognizes them, epitopes are classified into :

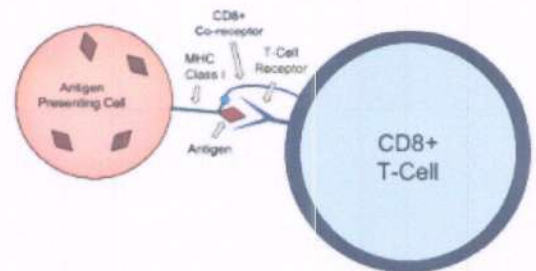
1. B-Cell Epitopes
2. T-Cell Epitopes

PARATOPE AND EPITOPE



T-Cell Epitopes

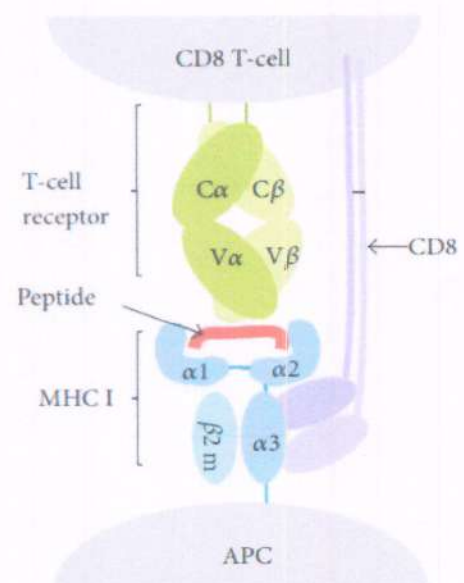
- Short peptide fragment derived from protein antigen that is recognized by T lymphocytes only after it has been processed.
- Presented on the surface of antigen presenting cells (APCs) in association with Major Histocompatibility Complex (MHC) molecules.



Generation of T-Cell Epitopes

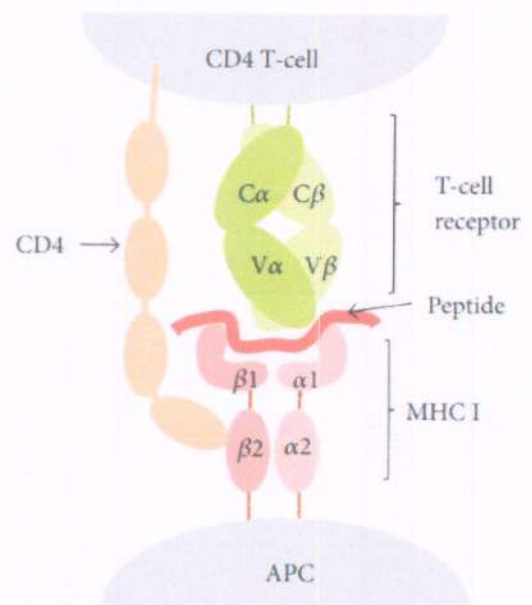
A. Endogenous Pathway (MHC Class I)

- Source of antigen – Intracellular proteins
- Processing takes place
- Recognition by CD 8 Cytotoxic T-cells
- Epitope length : 8-10 amino acids



B. Exogenous Pathway

- Source : Extracellular antigens taken up by APCs
- Processing takes place
- Epitope length : 13-18 amino acids
- Recognition of T-Cell epitopes



Importance of T-Cell Epitopes

- Essential for cell mediated immunity
- Determine the specificity of T-Cell responses
- Crucial in vaccine development
- Play a role in autoimmune diseases
- Important targets in cancer immunotherapy and immunodiagnostics



THANK YOU

Seminar on (Developmental Biology)
Determination, Induction and Differentiation



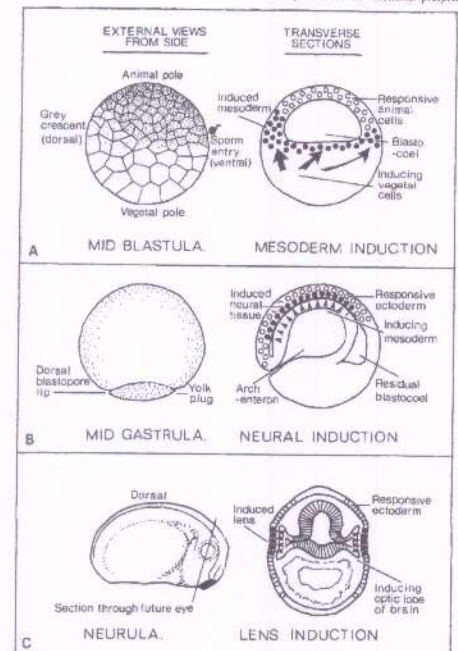
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Induction

- One group of cells (inducing tissues) influences the developmental fate of another group of cells (responding tissue) through chemical signals
- Key features :
 - Requires cell-cell interactions
 - Involves signaling molecules
 - Occurs during early embryonic development
 - Usually reversible in early stages



Types of Induction

1. Instructive induction

- A chemical signal determines the fate of responding cells
- Removal of signal results in different developmental outcome

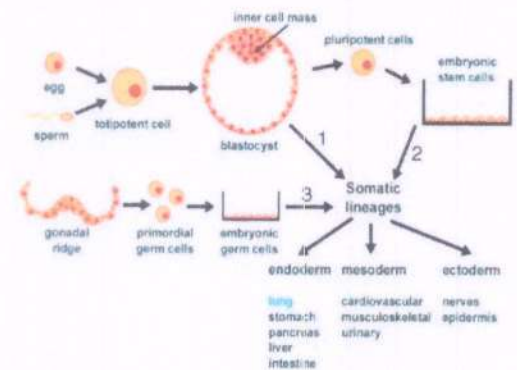
2. Permissive induction

- The signal does not specify fate but allows development to proceed
- Cell already has the potential to differentiate

Determination

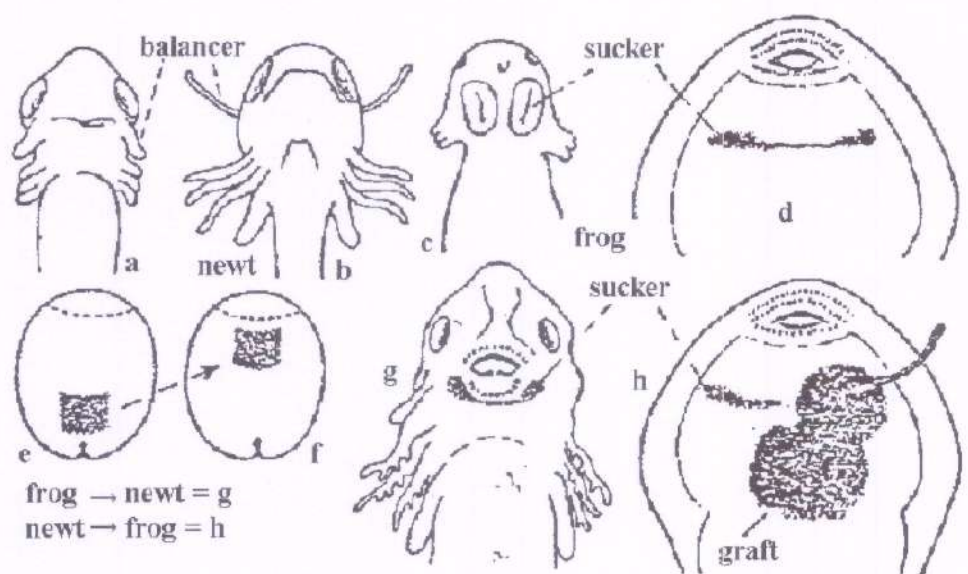
- The process by which a cell becomes irreversibly committed to a specific developmental fate, even though it may not yet show visible differentiation
- Key Features :
 - Fate becomes fixed
 - Cell may still appear undifferentiated
 - Determination is irreversible
 - Cell no longer responds to new inductive signals

cell determination



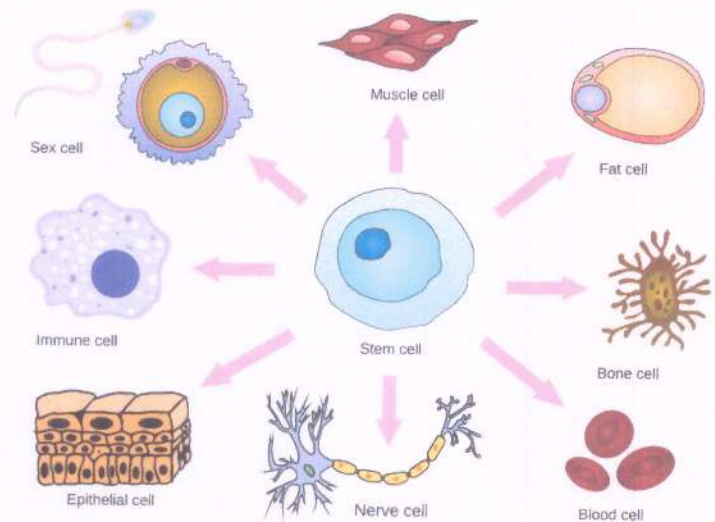
Evidence for Determination

- If a determined cell is moved to a different location in the embryo, it will still differentiate according to its original fate.
- This shows that the fate is internally programmed.



Differentiation

- The process by which a determined cell undergoes structural, biochemical, and functional changes to become a specialized cell type.
- Changes During Differentiation
 1. Structural changes : Alterations in cell shape and size, Development of specialized organelles
 2. Biochemical changes : Synthesis of cell-specific proteins and enzymes
 3. Functional changes



THANK YOU

Seminar on (Aquatic Biology)

Wetlands : Types and Classification



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Wetlands

- A wetland is an ecosystem in which water is the dominant environmental factor controlling:
 - Soil development
 - Plant and animal communities
- Water may be:
 - Permanent or temporary
 - Static or flowing
 - Fresh, brackish, or saline
- Wetlands occupy the ecotone between terrestrial and aquatic ecosystems.



Classification of Wetlands

- Wetlands are classified using multiple criteria because no single system fully explains their diversity.

I. Classification Based on Origin

- ### A. Natural Wetlands : Formed through natural geological and hydrological processes.

Examples:

- Floodplains
- Marshes
- Swamps
- Mangroves
- Peatlands
- Deltaic wetlands

Artificial (man-made) Wetlands

- Created intentionally or unintentionally by humans.

Examples:

- Rice paddies
- Irrigation canals
- Reservoirs
- Fish culture ponds
- Constructed wetlands for wastewater treatment

II. Classification Based on Hydrological Connection

A. Riverine Wetlands

Associated with rivers and streams

Influenced by seasonal flooding

Water movement is unidirectional

Examples : Floodplains

Riparian wetlands



B. Lacustrine Wetlands

- Associated with lakes and reservoirs
- Usually freshwater
- Found along lake margins



C. Palustrine Wetlands

- Non-tidal freshwater wetlands
- Dominated by vegetation
- Most common inland wetlands
- Examples : Marshes
Swamps
Bogs
Fens



D. Marine / Coastal Wetlands

- Influenced by tides and seawater
- Salinity varies
- Examples : Mangroves
Tidal flats
Salt marshes
Estuaries



III. Classification Based on Salinity

- Salinity strongly affects species composition.

TYPE	SALINITY RANGE	CHARACTERISTICS
Freshwater wetlands	<0.5 ppt	High plant diversity
Brackish wetlands	0.5-30	Mix of fresh and marine species
Marine wetlands	Around 35 ppt	Salt tolerant organisms

IV. Classification Based on Vegetation Structure

1. Marshes

Characteristics:

Dominated by herbaceous plants

No trees or shrubs

Periodically or permanently flooded

High nutrient availability

Types: Freshwater marshes

Salt marshes

Ecological role :

High primary productivity

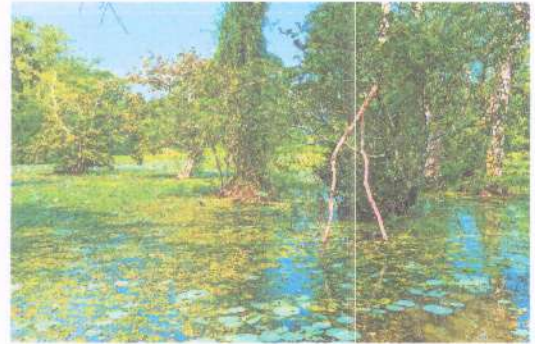
Breeding sites for fish and amphibians



2. Swamps

Characteristics:

- Dominated by woody vegetation
- Trees and shrubs present
- Water may be stagnant or slow-moving
- Types : Freshwater swamps
Mangrove swamps (coastal)
- Ecological role :
Carbon storage
Habitat for birds, reptiles, mammals



3. Peatlands

Characteristics:

- Accumulation of peat
- Waterlogged, acidic
- Low oxygen and slow decomposition
- Types:
Bogs : Rain-fed
Nutrient-poor

Fens : Groundwater-fed
More nutrients



4. Mangrove Wetlands

- Characteristics:
- Tropical and subtropical coastal wetlands
- Salt-tolerant trees
- Subjected to tidal flooding
- Adaptations : Pneumatophores
 - Vivipary
 - Salt-excreting leaves



V. Ramsar Classification of Wetlands

- Used for international conservation.
- Three Broad Categories:
 - Marine and coastal wetlands
 - Inland wetlands
 - Human-made wetlands
- This system is important for identifying Ramsar sites of international importance

Seminar on (Reproductive Biology) **Infertility in Females**



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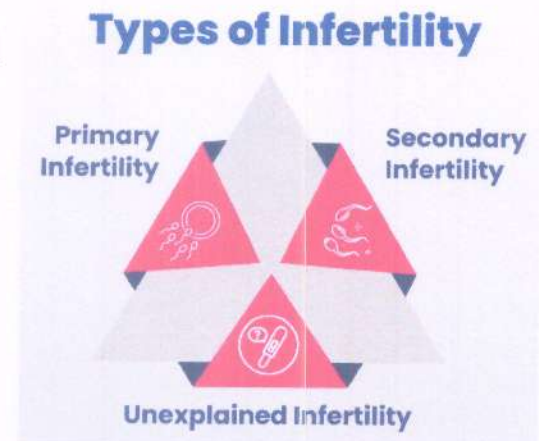
Female Infertility

- Infertility in females is a condition of the reproductive system that causes women to be unable to conceive



Types of Infertility

- **Primary infertility** refers to a condition in which a woman has never been pregnant and is unable to conceive after one year of regular, unprotected sexual intercourse .
- **Secondary infertility** occurs when a woman is unable to conceive again after having at least one successful pregnancy, regardless of whether that pregnancy resulted in a live birth .
- **Unexplained infertility** is a type of infertility in which standard fertility tests fail to identify any specific cause, yet the woman is still unable to conceive.

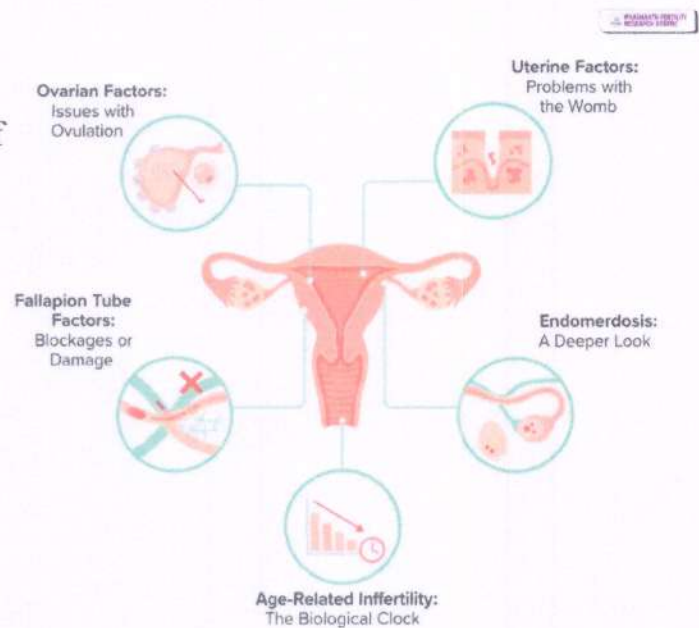


Signs of Infertility

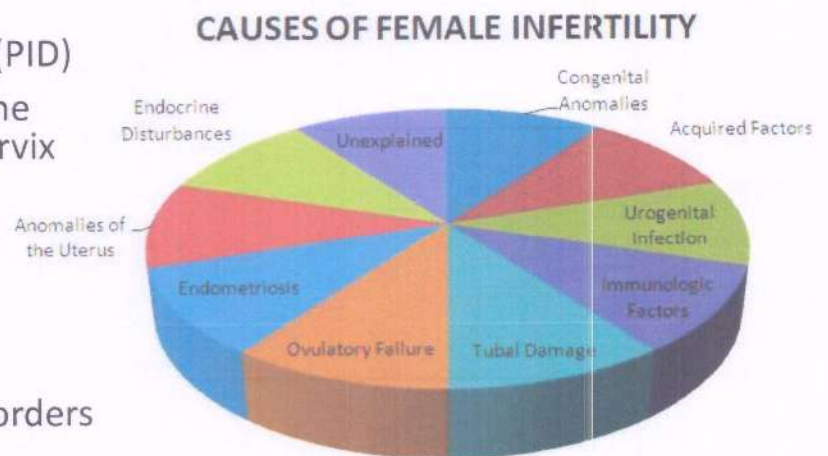
- The main sign of infertility is the inability to get pregnant after 6 months to 1 year of regular, unprotected sexual intercourse, depending on the woman's age .
- Some women may not show any obvious symptoms other than difficulty conceiving.
- However, others may experience certain physical signs, such as:
 - Irregular menstrual cycles
 - Absence of menstruation (amenorrhea)
 - Irregular or abnormal vaginal bleeding
 - Pelvic or lower abdominal pain
 - Pain during menstruation or intercourse (in some cases)

Causes of Infertility

- Several risk factors increase the chances of infertility in women. These include:
- Increasing age
- Eating disorders
- Excessive alcohol intake
- Smoking or tobacco use
- Substance abuse
- Obesity or being underweight
- Sexually transmitted infections (STIs)
- Exposure to environmental toxins
- Radiation or chemotherapy
- Hypothalamic or pituitary gland disorders



- Polycystic ovary syndrome (PCOS)
- Poor egg quality
- Endometriosis
- Pelvic inflammatory disease (PID)
- Structural abnormalities of the uterus, fallopian tubes, or cervix
- Uterine fibroids or polyps
- Thyroid disorders
- Autoimmune diseases
- Kidney diseases
- Genetic or chromosomal disorders
- Absence of ovaries



THANK YOU



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Department of Zoology

Academic Year 2025-26

Date: 01/01/2026-04/01/2026

"B.Sc. III Semester VI Seminar (Major)"



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