Table of Contents

EMBRYOLOGY

- Embryological Anatomy
- Embryological Physiology
- Embryological biochemistry

RECURRING LIFE

- more specific
    - today's creator (अद्यज)
        - EMBRYOLOGY GENITORS
            - zygote (युग्मज)
                - Blast -
                    - Amnioblast (उल्वज)
                    - Blastocoel (जननगुहा) , Blastocyst (जननपूट) , Blastomeres (जननखंड) , Blastopore (जननछिद्र)
                    - Embryoblast (भ्रूणज)
                    - Epiblast (अधिज , आद्यबहिर्जनस्तर) , Hypoblast (अधःज , आद्यअंतःजनस्तर)
                    - Trophoblast (पोषज)
                - heart and vessels creator
                    - Angiogenesis (वाहिकाजनन)
                    - Cardiogenic area (हृदजनक क्षेत्र) , Cardiac progenitor cell (हृद प्रजनक कोशिका)
                - creator of kidney
                    - Nephrogenic cord
                - nervous system creator

- युग्मज (zygote)
    - द्वि कोशिकीय युग्मज (क्स 2 celled)
    - 4 celled (4 क्स)
    - 8 celled (8 क्स)
    - 16 celled (16 क्स)
        - जननपूट (blastocyst - क्सः)
        - जननगुहा (blastoceol - ह्,अः)
        - outer cell mass (क)
            - पोषज (trophoblast)
                - कोशिकापोषज (cytotrophoblast - ऋ)
                - बीजपोषक संकोशिका (synctiotrophoblast - कृ)
        - भ्रूणीय ध्रुव (Emrbyonic pole - किं)
            - अवभ्रूणीय ध्रुव (Abembryonic pole - कुं)
            - Mural trophoblast (कों)
        - भ्रूणज (inner cell mass / embryoblast - स)
            - अधिःज (epiblast - श)
                - उल्वीय गुहा (amniotic cavity - शः)
                - उलवज (amnioblast)

        - ectoderm
            - आद्य रेखा (Primitive streak)
                - आद्य मंडली , आद्य गांठ (Primitive knot / node / hensens node)
                    - जनन छिद्र (blastopore)
                        - आद्य पृष्ठरज्जु नाल (notochordal process)
                            - आद्य तंत्राशय नली (neurenteric canal)
                            - तंत्रिक शिखर (neural crest)
                            - development of nervous system
- अध:ज (hypoblast - ष)
    - पीतक थैली (yolk sac - ष:)
    - heuser membrane (पीतकज)
        - endoderm
            - प्ररज्जु पत्तल / आद्य पत्तल (Prochordal plate / primitive plate)
            - development of digestive system
            - development of respiratory system
- मध्यत्वक, मध्यज (mesoderm - स) derived from ingressing epiblast cells
    - paraxial (परअक्षीय -)
        - extends from primitive streak to prechordal plate
            - extends to otic vesicle of hind brain
                - post otic part undergoes segmentation in to cubical blocks
                    - अनुकाय , कायखंड (Somites) or , अनुकायांश (somitomeres) , metameres by transverse clefts
                        - 44 pairs develop
                            - first 4 pairs called occipital somites
                                - form skull
                            - 8 cervical
                            - 12 thoracic
                            - 5 lumbar
                            - 5 sacral
                            - 8-10 coccygeal
                            - (sclerotome)
                                - अक्षीय कंकाल (axial skeleton)
                                    - development of skeletal system
                                    - vertebral column
                                    - ribs
                            - (dermato-myotome)
                                - lateral (dermatome) plate
                                    - त्वचा (dermis of skin)
                                - medial muscle plate
                                    - अक्षीय मांस - पेशी (axial muscles)
                                    - muscles of tongue
                                    - diaphragm
                                    - trunk
                                    - अंगीय मांस पेशी (limb muscles)
                    - rostral/ beak part remains unsegmented

                - develop base of skull
            - Intermediate (अंतरामध्य)
                - upper cervical and thoracic regions show segmentation
                - lower segments are unsegmented
                    - Nephrogenic cord
                        - development of urogenital system
                        - development of reproductive system
            - Lateral (पार्श्व)
                - continuous with pericardial bar cephalic to buccopharyngeal membrane
                - pericardial bar
                    - pericardial sac
                - series of clefts appear inside
                    - join to form
                        - intraembryonic coelom
                        - u shaped tubular passage
                        - divides mesoderm
                            - somatic layer with overlying ectoderm
                                - somatopleure
                                    - body wall
                                    - parietal layer
                                    - skeletal elements
                                        - pectoral girdle
                                        - pelvic girdle
                            - splanchnic layer with underlying endoderm
                            - Splanchnic layer
                            - gut
                    - splanchnic mesoderm
                        - development of circulatory system
        - बाह्य भ्रूणगुहा (extraembryonic coelom)
        - बाह्य मध्यत्वक (extramebryonic mesoderm)
            - आद्यकायिक मध्यजनस्तर (Somatopleuric mesoderm)
            - आद्यआशय मध्यजनस्तर (Splanchnopleuric mesoderm)
            - ग्रसनी चाप
        - PRIMITIVE POSTURE OF EMBRYO
            - the first folding of embryo to reorganize the organ locations
                - cardiogenic area , pericardial sac , septum transversum

- आद्य गर्त (Primitive pit)
- आद्य खात (Primitive groove)
- आद्य स्थंभ / पृष्ठरज्जु (notochord)

- decidua (माँ)
    - decidua basalis पाती आधार
    - decidua parietalis पाती पार्श्व
    - decidua capsularis पाती संपुट

Introduction

Basic process in development

Germ Cells and their maturation

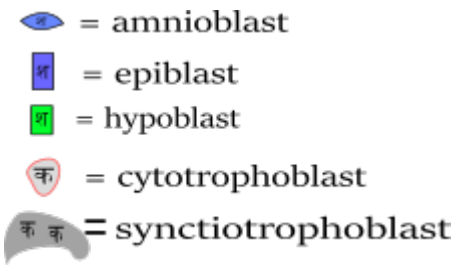
Fertilization

- fertilization

Stages of embryology

Placenta

Fertilization



ZYGOTE

STAGES OF EMBRYOLOGY

CHANGES IN FIRST WEEK

- morula
- blastocyst

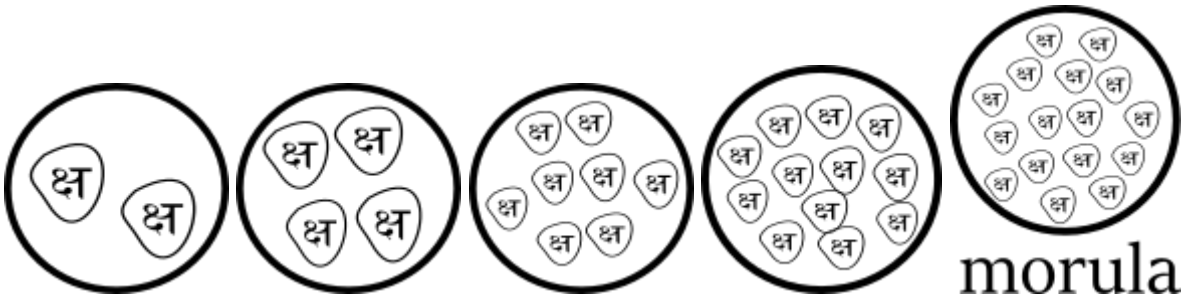
CLEAVAGE The two cells formed as described above undergo a series of divisions. One cell divides first so that we have a 3 cell stage of embryo followed by 4 cell stage , a 5 cell stage etc. This process is called cleavage.

Subdivisions of cleavage

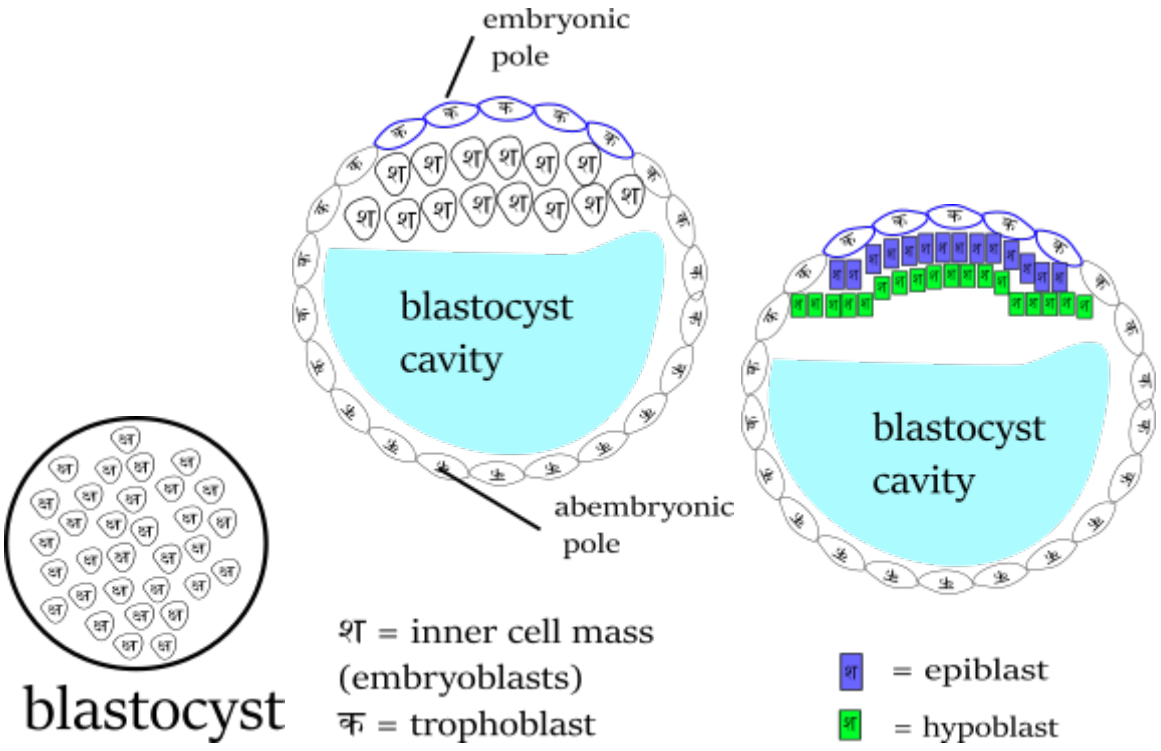
- Stage of compaction : at 8 celled stage

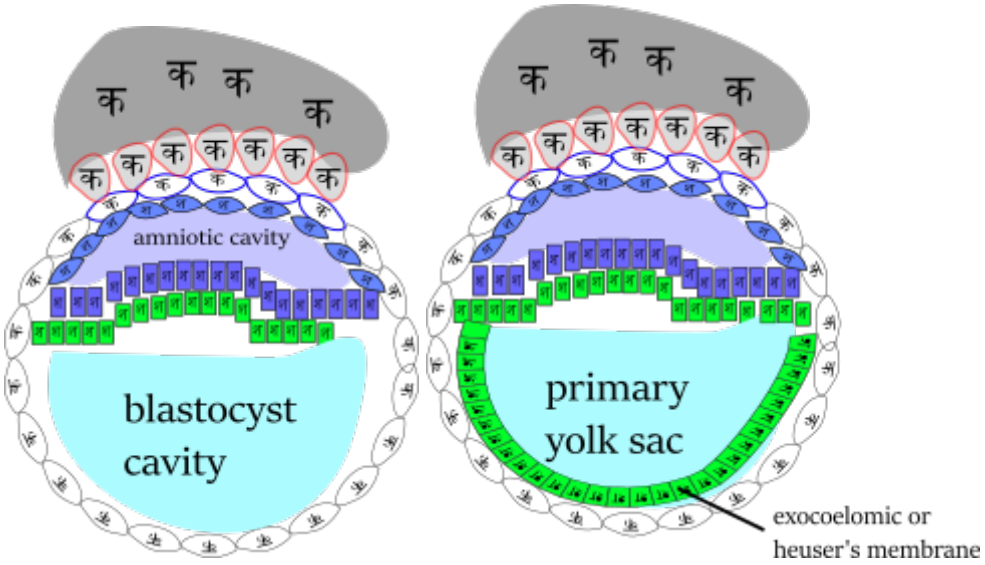
- Morula
- Blastocyst : between 4th and 5th day

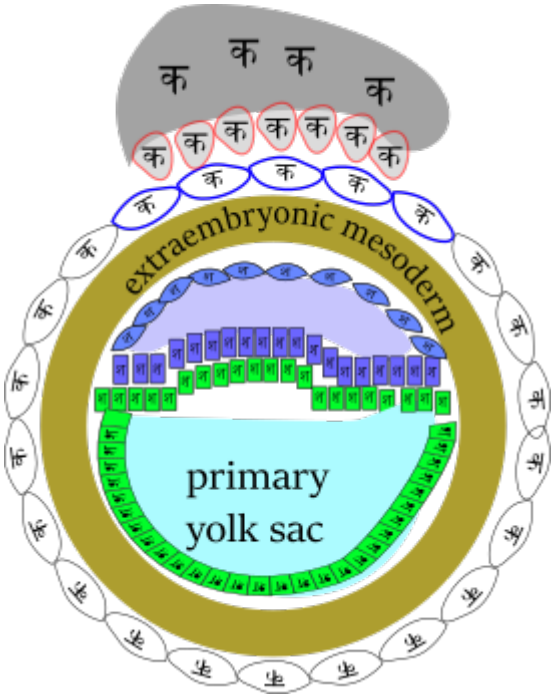
GERMINAL PERIOD



CHANGES IN SECOND WEEK







CHANGES IN THIRD WEEK

SYSTEMIC EMBRYOLOGY

- Development of cardiovascular system
- Development of respiratory system
- Development of nervous system
- Development of urogenital system
- development of gastrointestinal tract
- development of skeletal system
- Development of face