



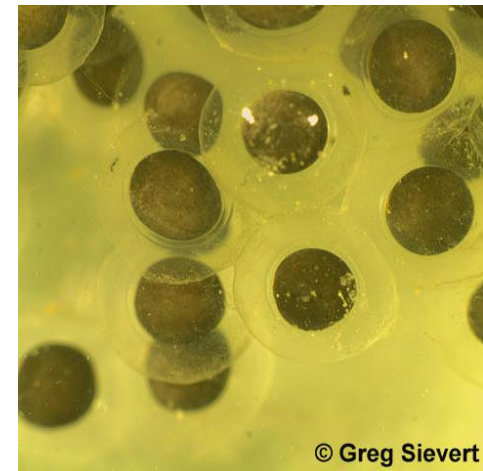
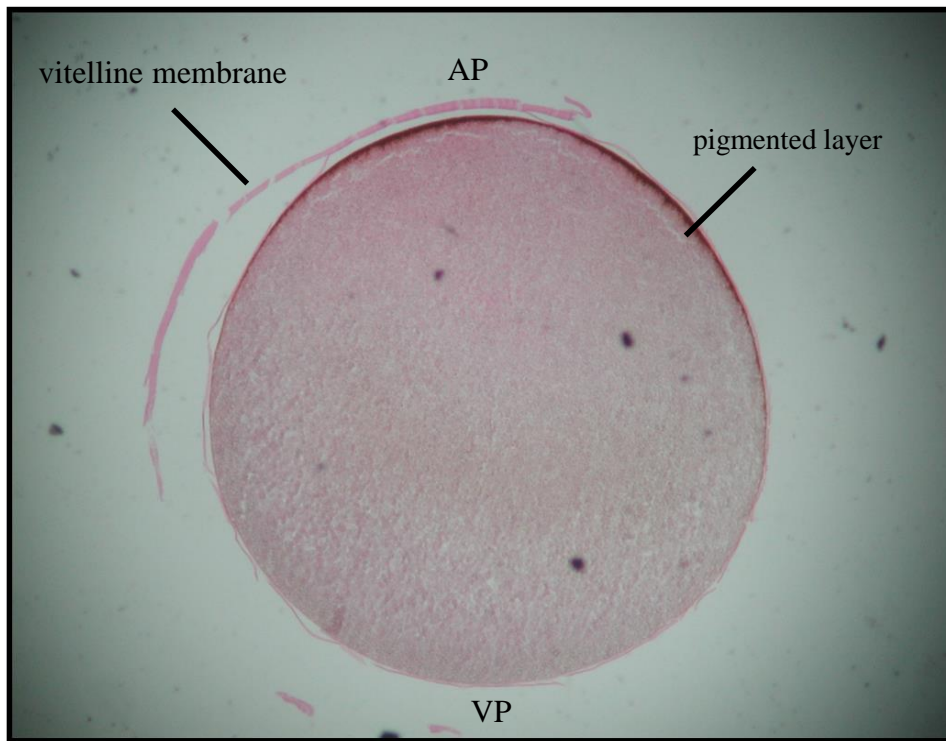
Faculty of Biological Science and Technology
Zoology and Botanical Department
Practical Embryology

مراحل ابتدایی تکوین در دوزیستان (قورباغه)
Early Development in Amphibian (frog)

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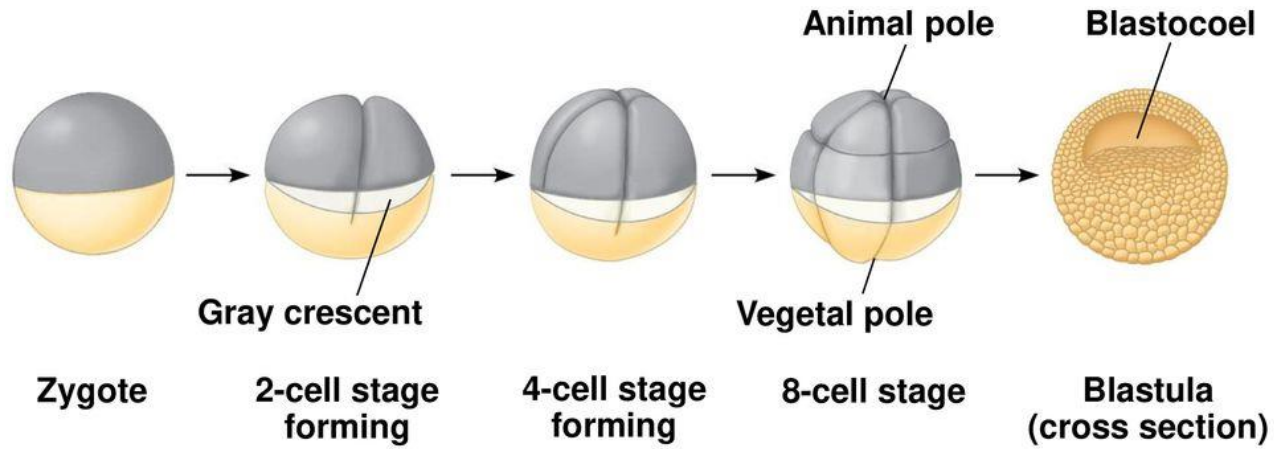
- ▶ اووسیت دوزیستان دارای مقدار متوسطی زرده است و از این رو مزولسییتال (mesolecithal) نامیده می شوند
- ▶ الگوی تسهیم آنها کامل شعاعی نامساوی (unequal radial holoblastic) است
- ▶ تخم دوزیستان بزرگ و با چشم غیر مسلح قابل مشاهده است



From: <http://academic.emporia.edu/sievertg/tadpoles/devo.htm>



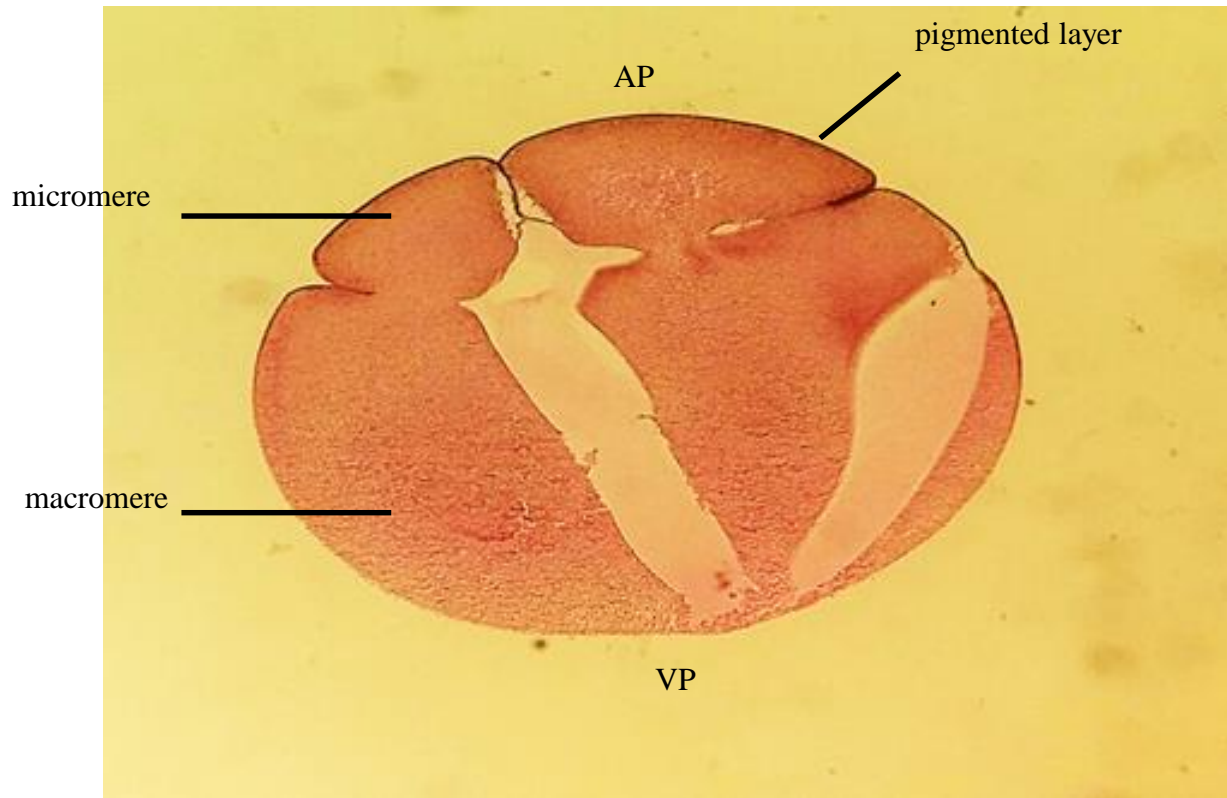
Figure 47.7a-5



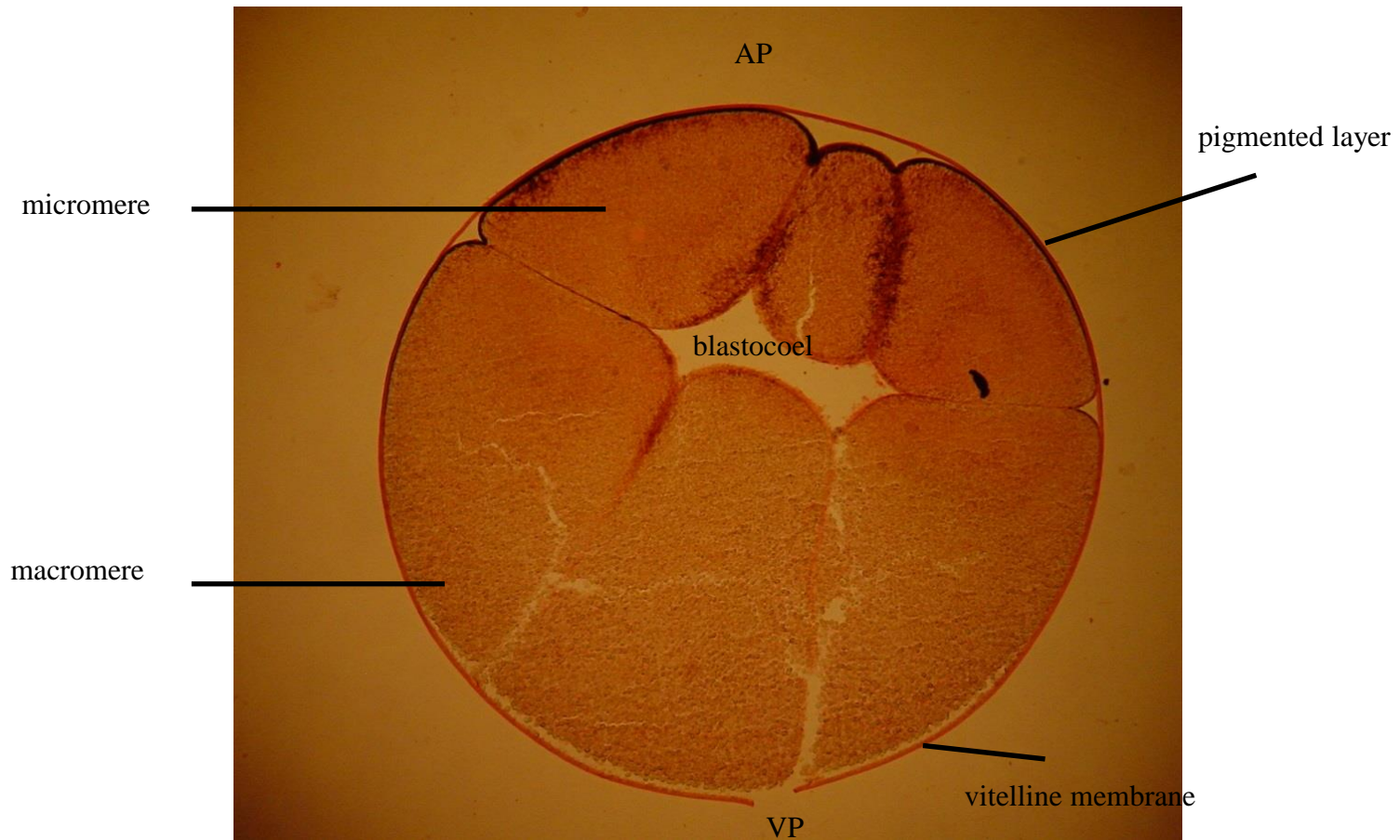
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تسهیم در قطب جانوری سریعتر از قطب گیاهی پیش می رود ▶



8 cell stage



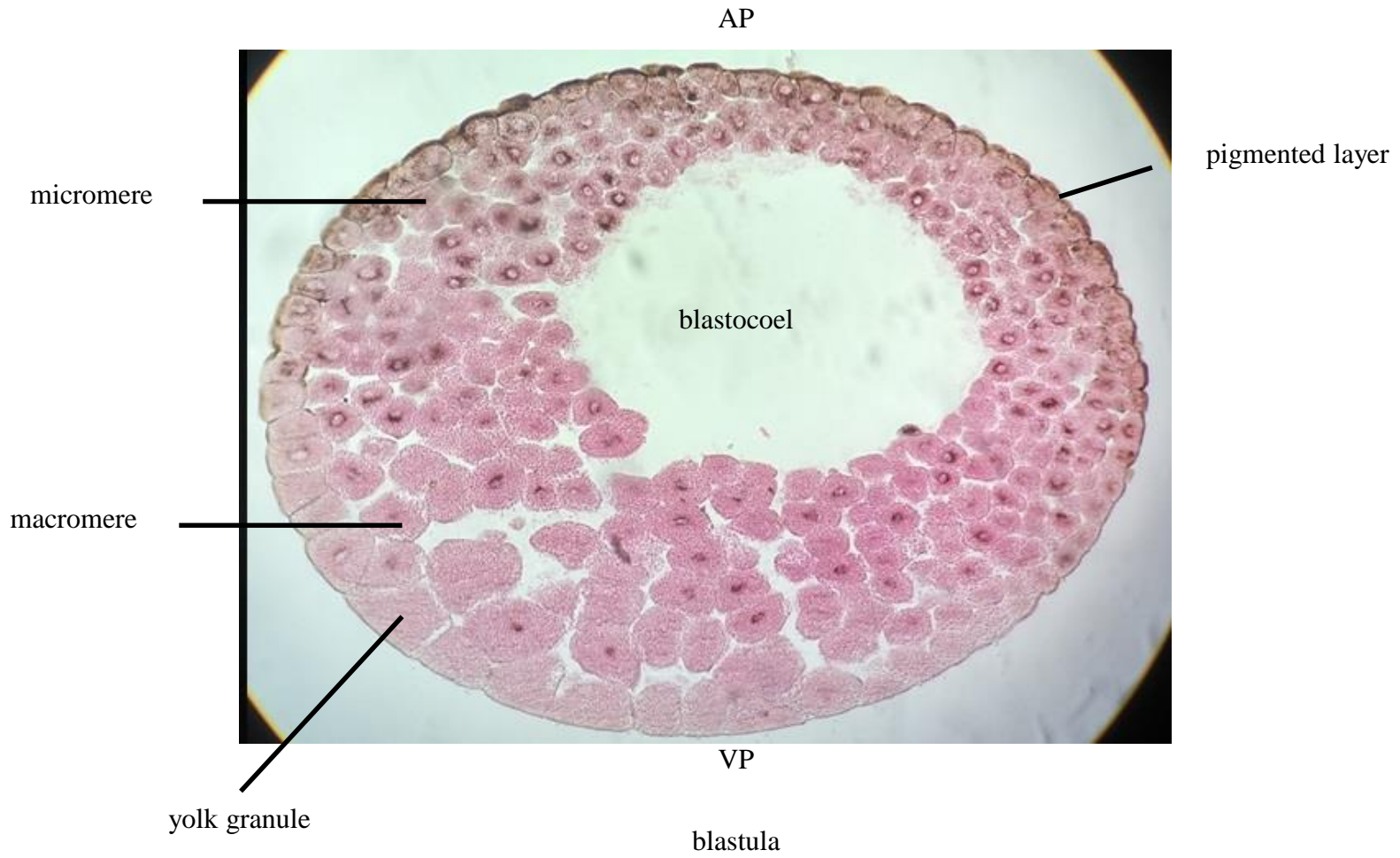
16 cell stage

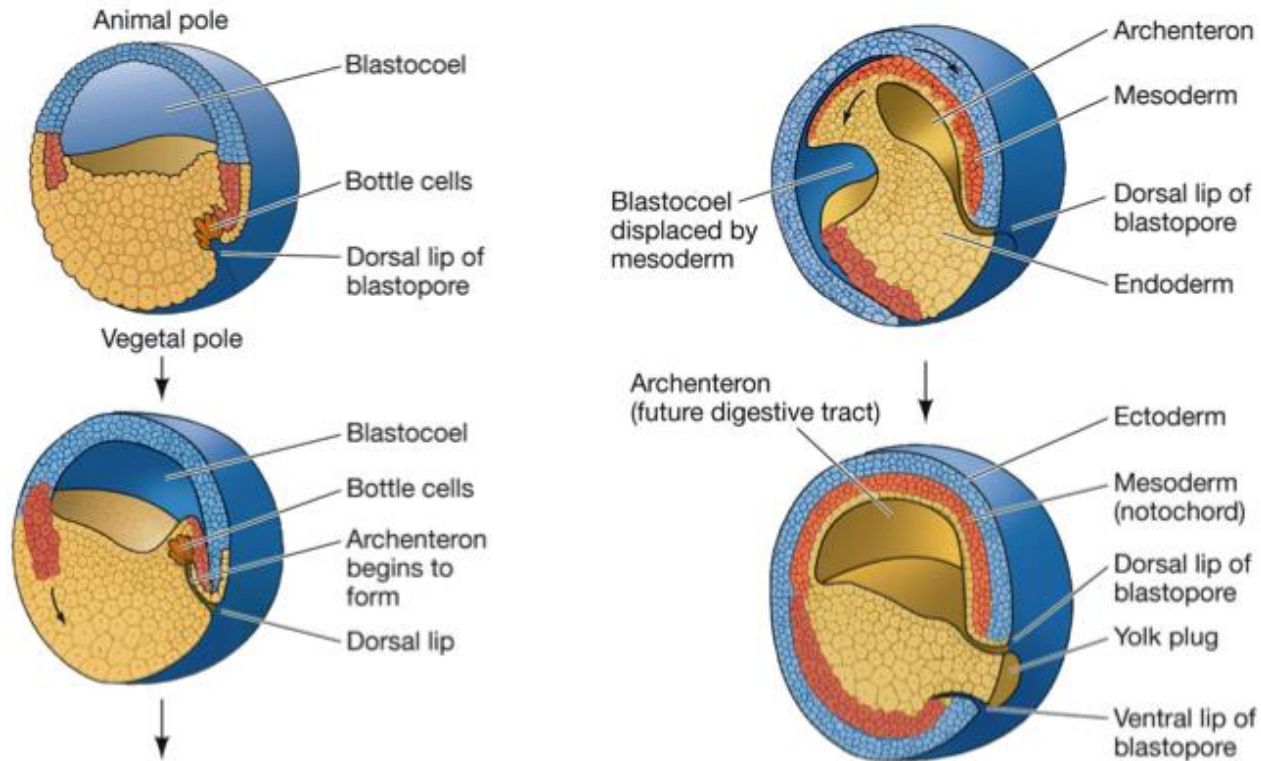


mid-cleavage stage

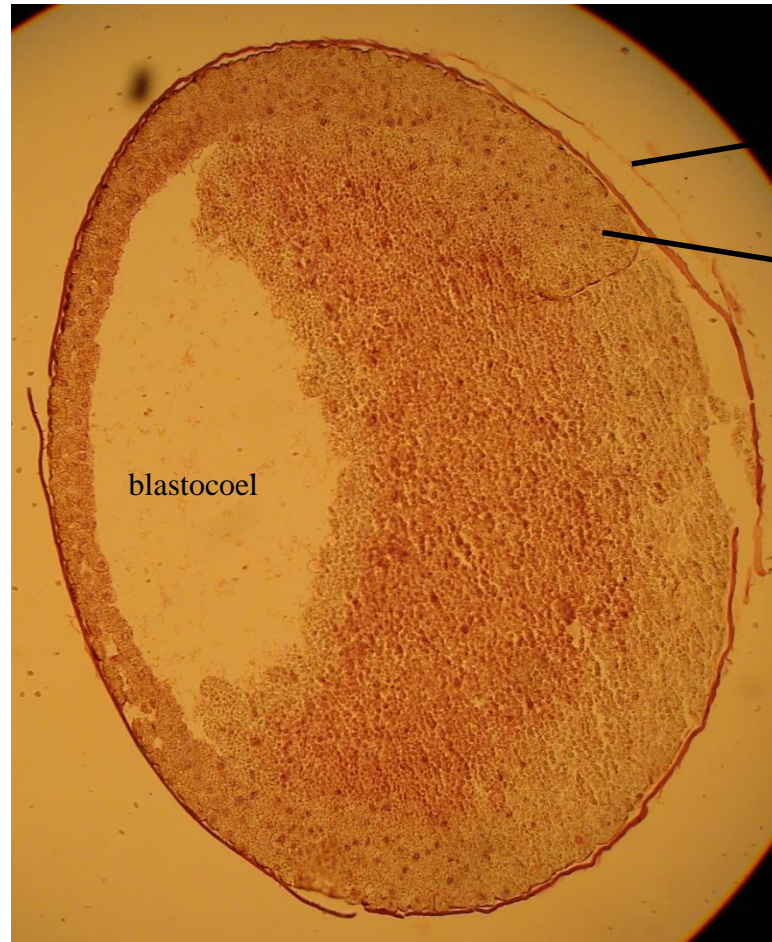


late cleavage stage





From: Gilbert, 2018



vitelline membrane

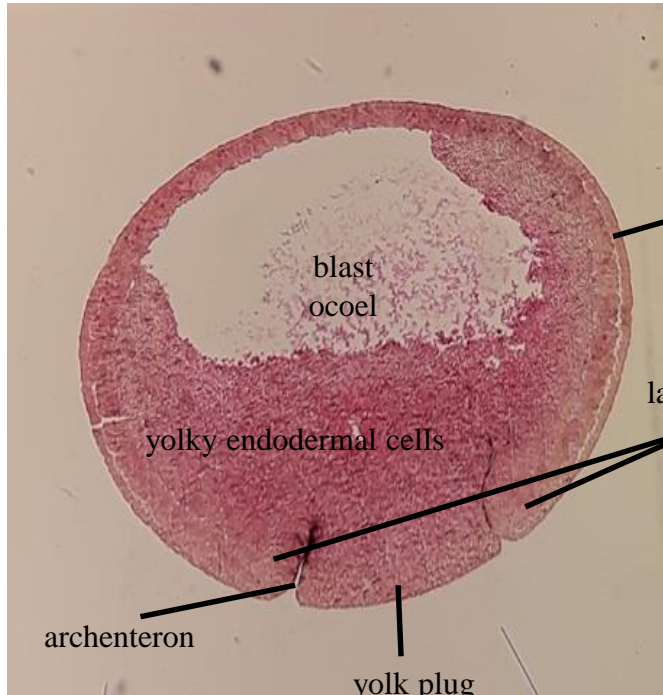
dorsal lip of blastopore

blastocoel

early gastrula stage



anterior



ectoderm

blastocoel

lateral lip of blastopore

yolky endodermal cells

archenteron

yolk plug

posterior



yolk plug

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