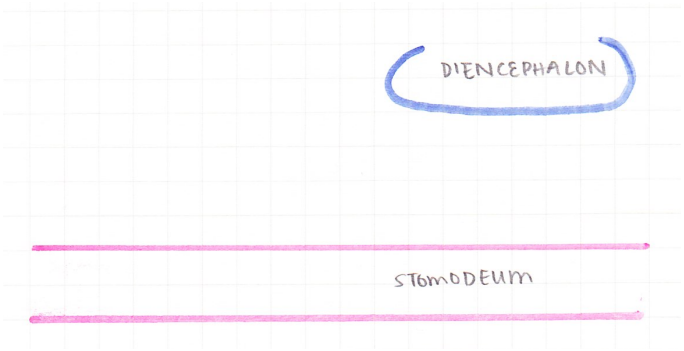
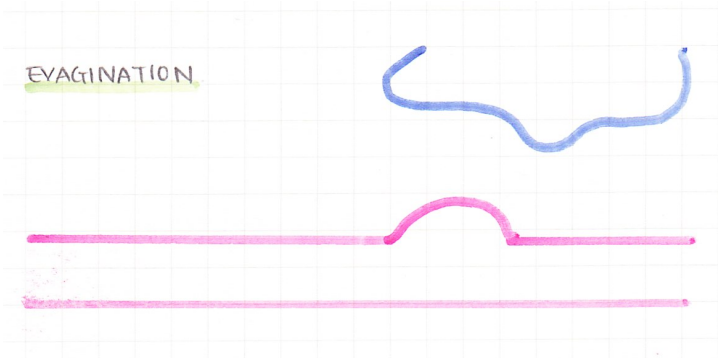
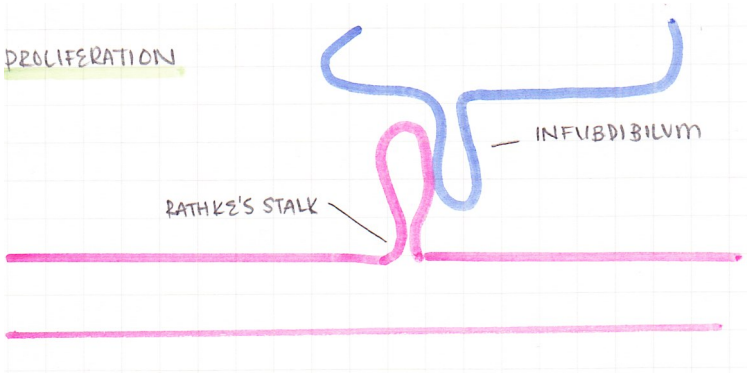
# THE PITUITARY GLAND




The pituitary gland forms from two structures: the stomodeum (which gives rise to the mouth and is formed from the endoderm) and the diencephalon (which will go on to form brain structures and originated from neural tube ectoderm).



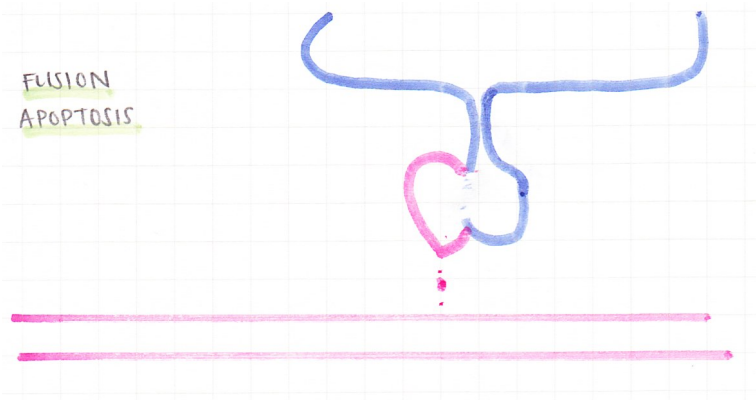

Evagination of both structures occurs so that a bulge rostrally from the stomodeum will form a structure called rathke's pouch, and another in the diencephalon caudally to form the pars nervosa.




These two bulges then form more out-pouching like structures as their connection to their parent tissues thins to stalks – rathke's stalk between stomodeum and rathke's pouch; infubdibilum between pars nervosa and diencephalon.

Then, two things occur: the pars nervosa and rathke's pouch fuse, and rathke's stalk degenerates. The pituitary gland is formed.

Note in the above that several morphogenetic events have occurred, including: proliferation, apoptosis, evagination, and fusion.




Simultaneously, patterning occurs. For example, several transcription factors are required to direct the formation of rathke's pouch. These include Ptx1 and Ptx2, which play important roles in cell proliferation, survival and differentiation. Another example concerns LHX3 and LHX4, which prevent apoptosis.