

2. Doppelstunde ESF II 2018

1.3. Was ist eine Herzstammzelle?

1.5. Wie entsteht das Herz in Säugetieren?

1.6. Wie entstand das Herz im Laufe der Evolution?

1.4. Wo befinden sich Herzstammzellen im Herzen?

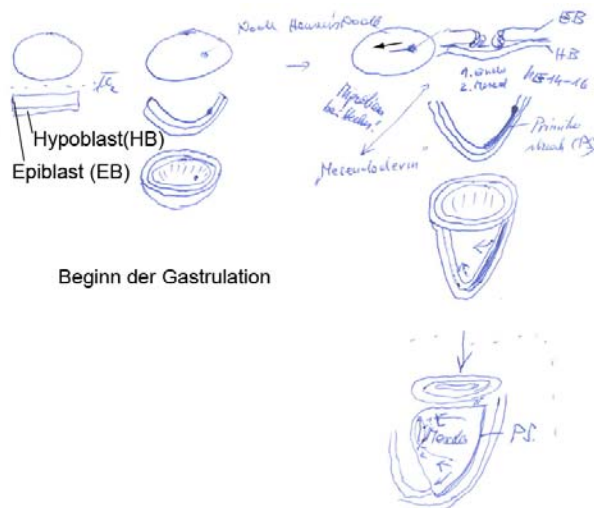
1.3. Was ist eine Herzstammzelle?

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2. Doppelstunde ESF II 2018

1.5.1. Wie entsteht das Herz während der frühe Embryogenese der Maus und des Menschen?

1.5.1.2. Was geschieht nach dem Einnisten des Embryos?



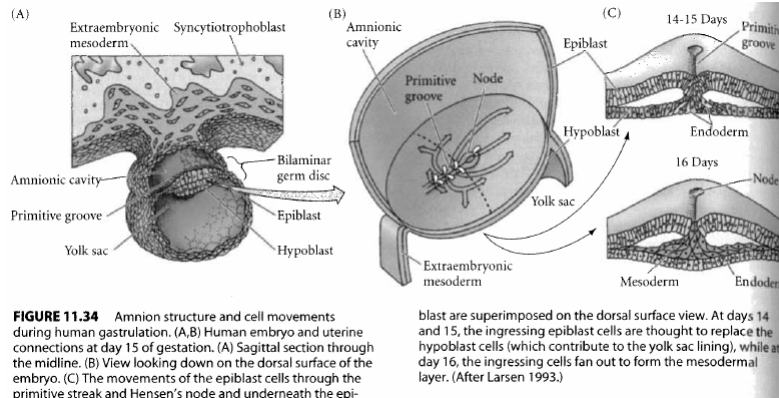
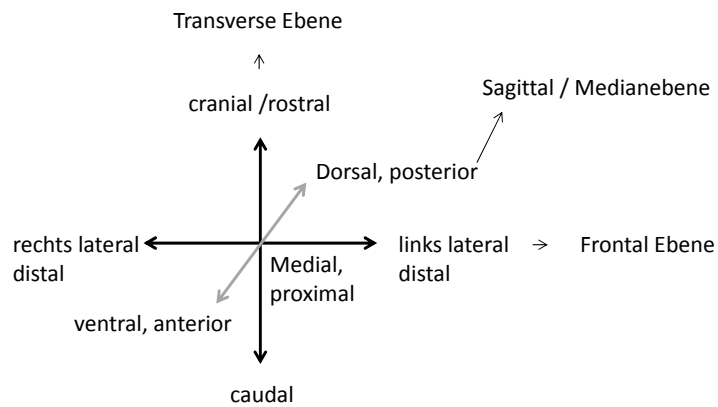


FIGURE 11.34 Amnion structure and cell movements during human gastrulation. (A,B) Human embryo and uterine connections at day 15 of gestation. (A) Sagittal section through the midline. (B) View looking down on the dorsal surface of the embryo. (C) The movements of the epiblast cells through the primitive streak and Hensen's node and underneath the epi-

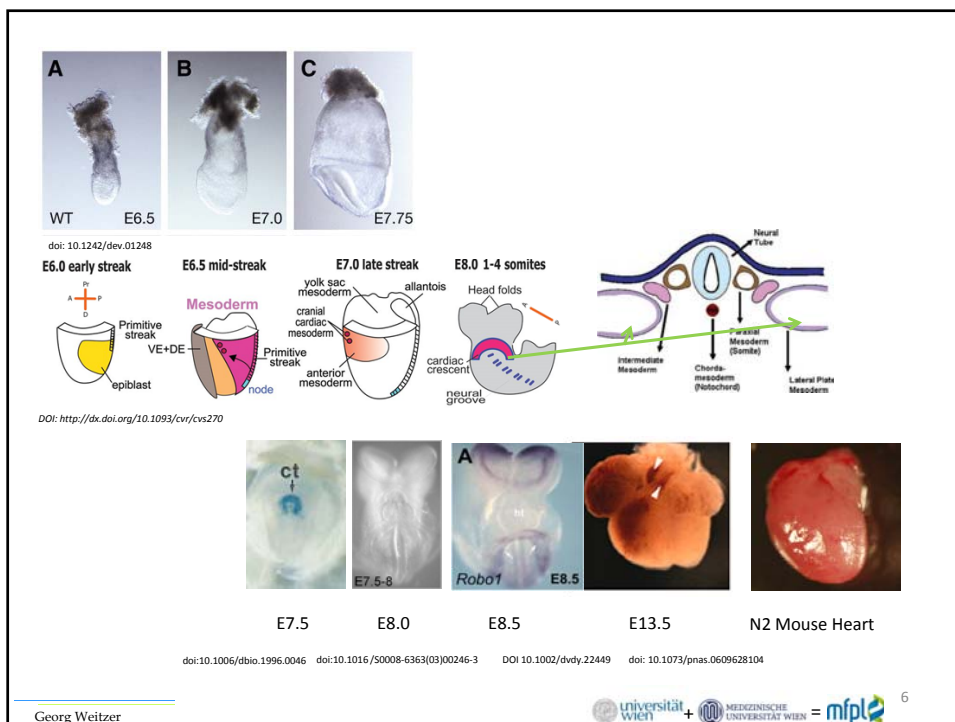
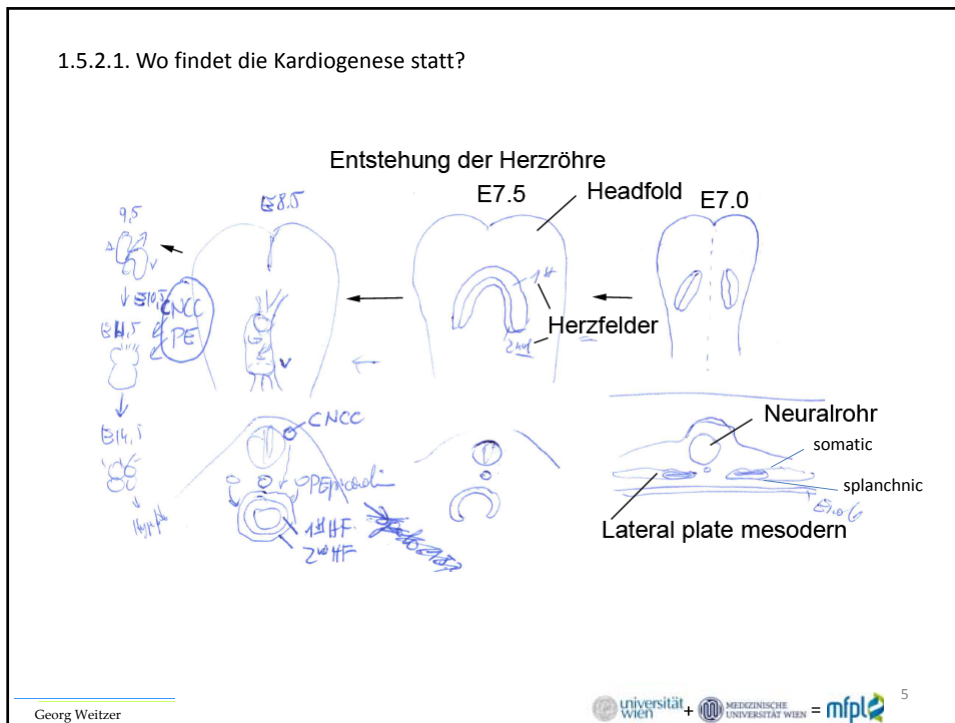
blast are superimposed on the dorsal surface view. At days 14 and 15, the ingressing epiblast cells are thought to replace the hypoblast cells (which contribute to the yolk sac lining), while at day 16, the ingressing cells fan out to form the mesodermal layer. (After Larsen 1993.)

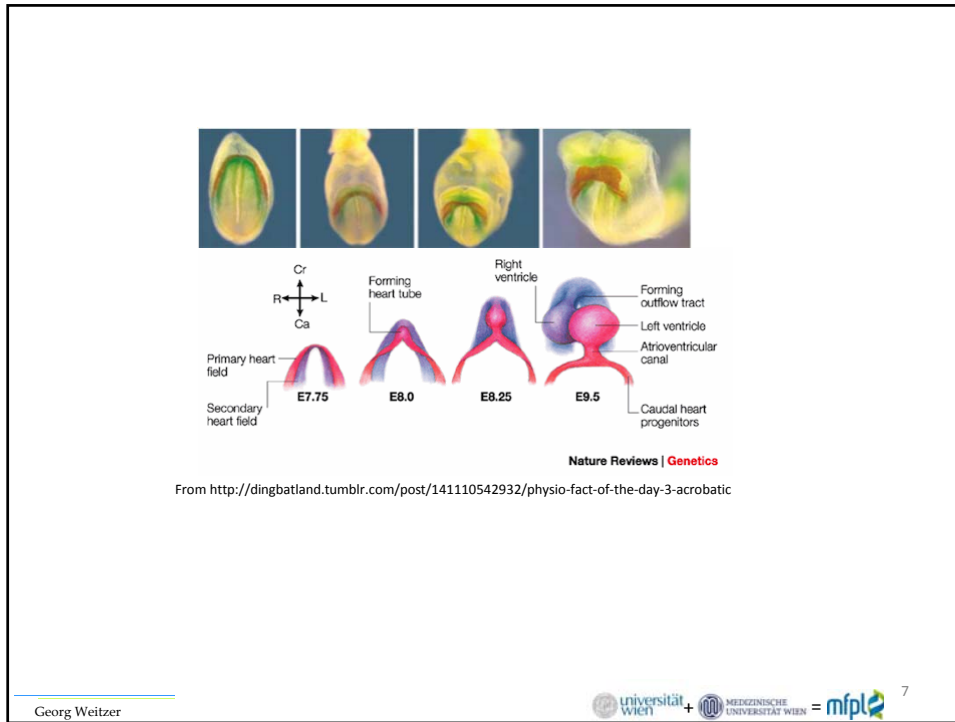
Developmental Biology page 354



Siehe auch: https://de.wikipedia.org/wiki/Anatomische_Lage-_und_Richtungsbezeichnungen

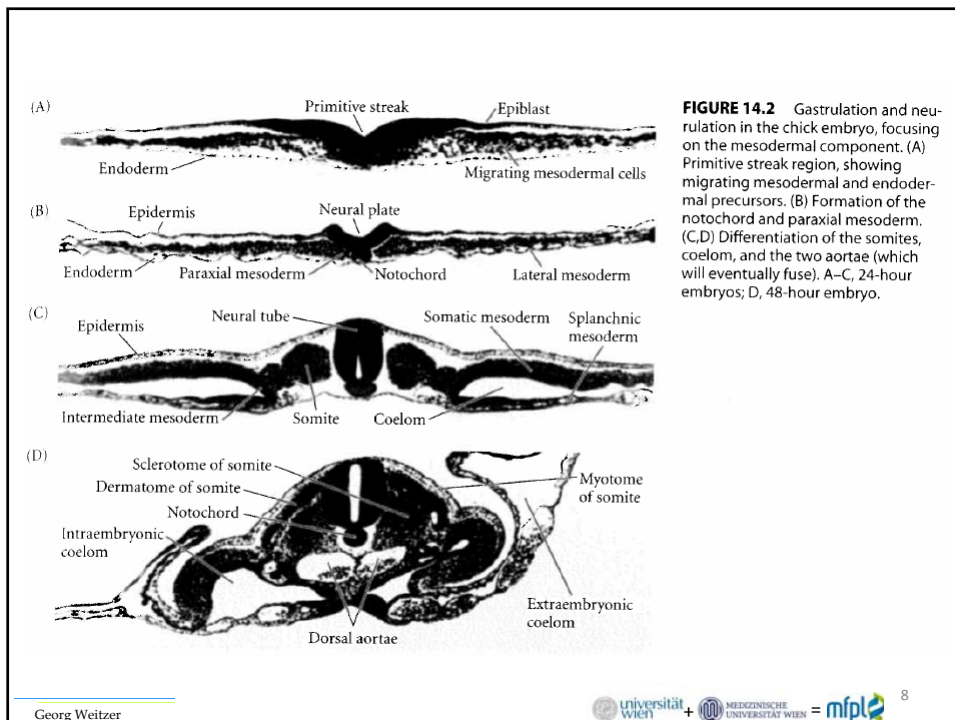
1.5.2.1. Wo findet die Kardiogenese statt?





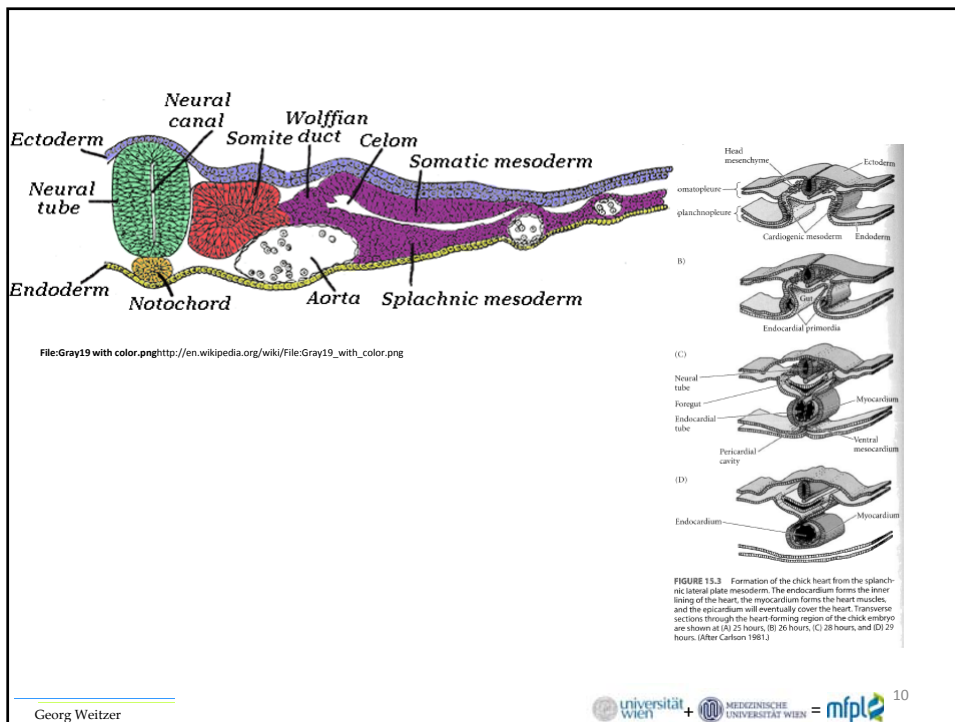
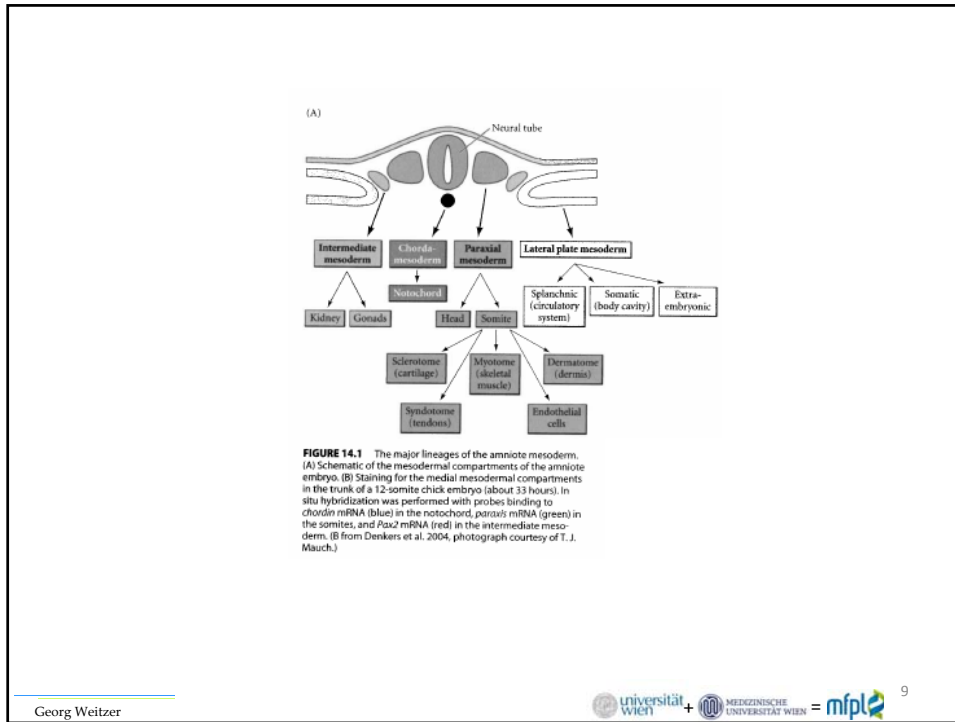
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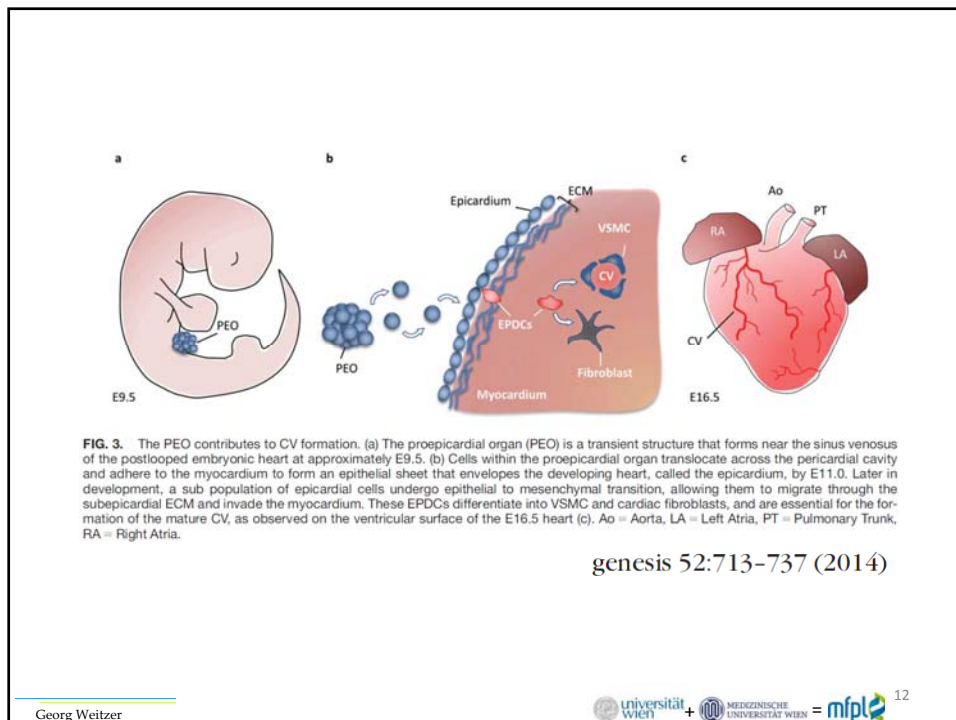
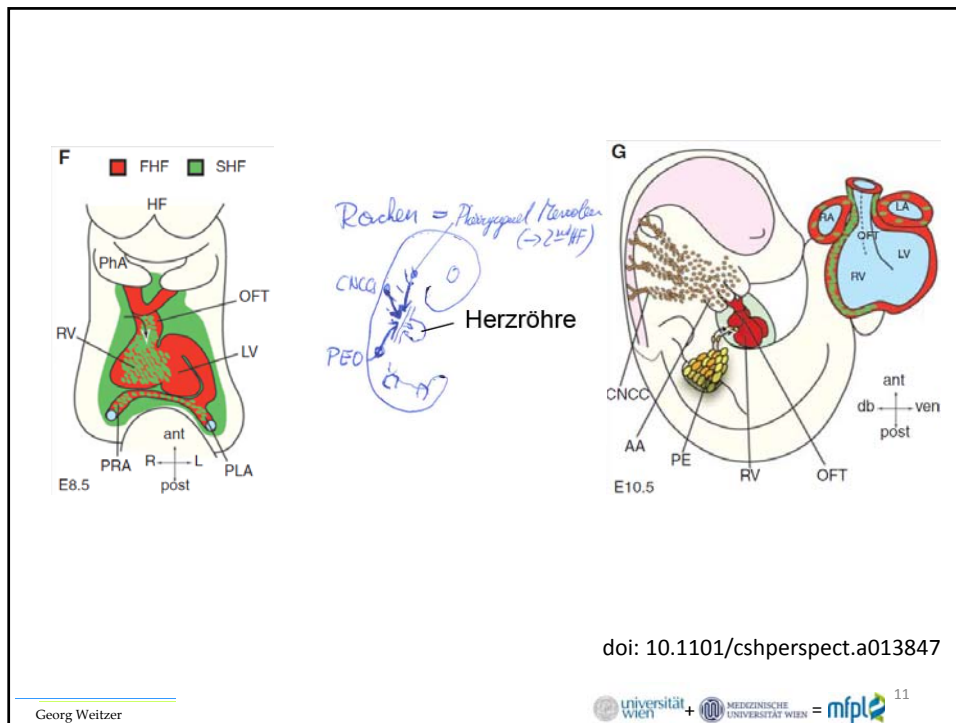
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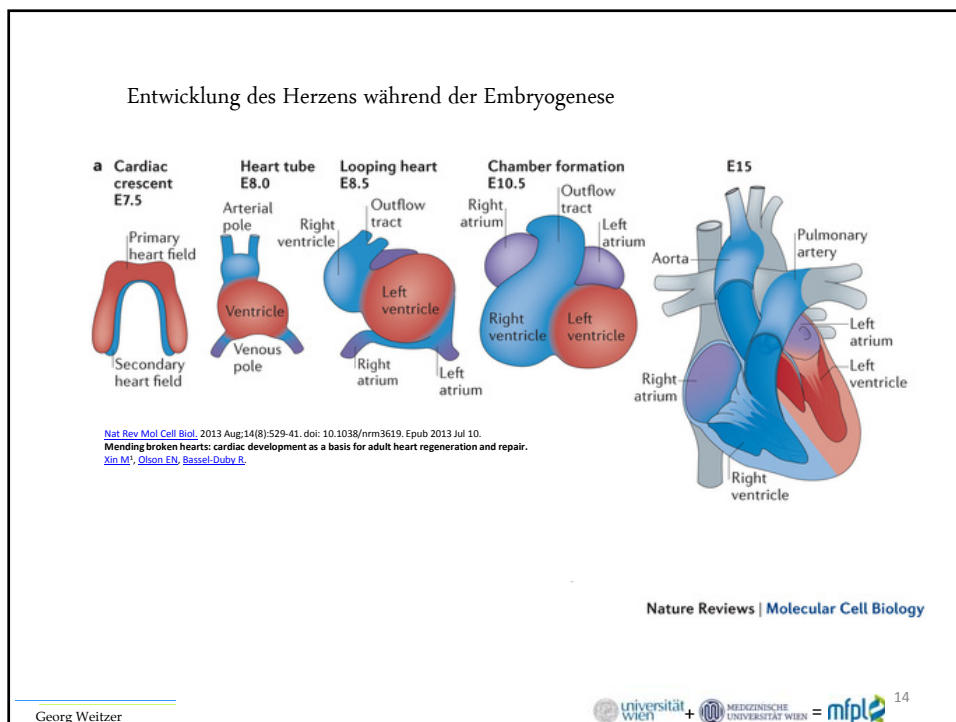
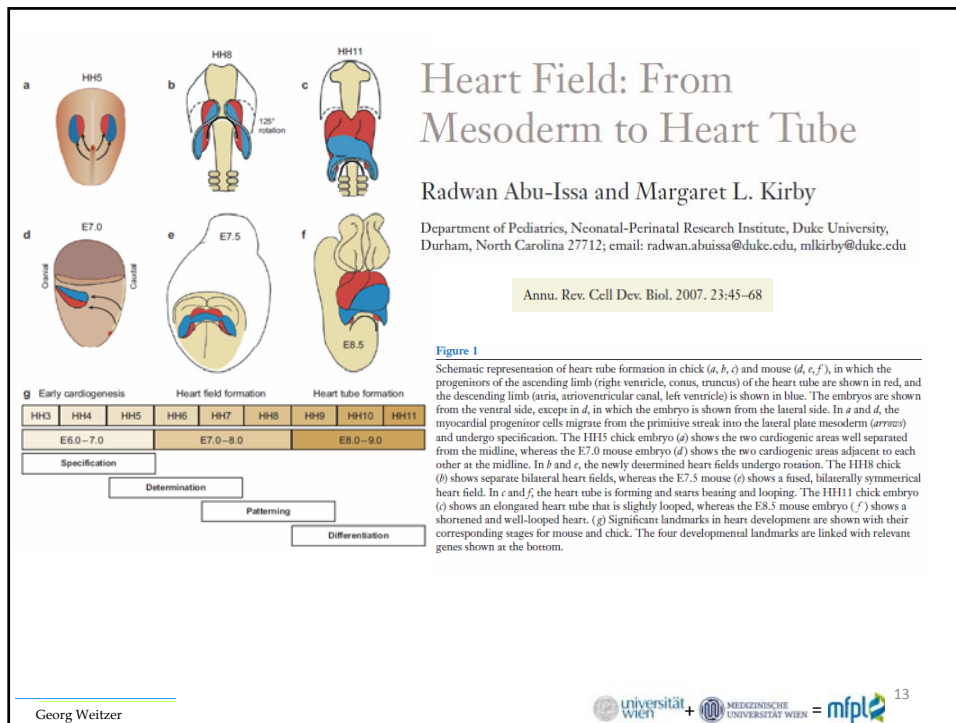


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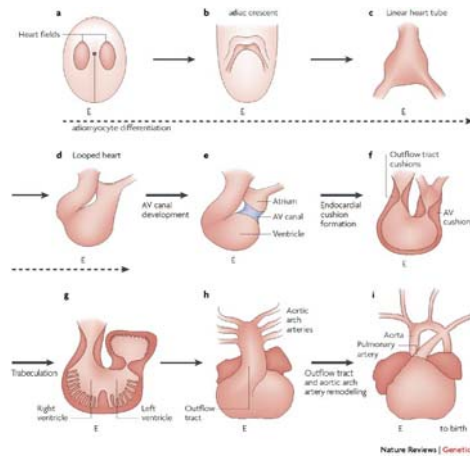
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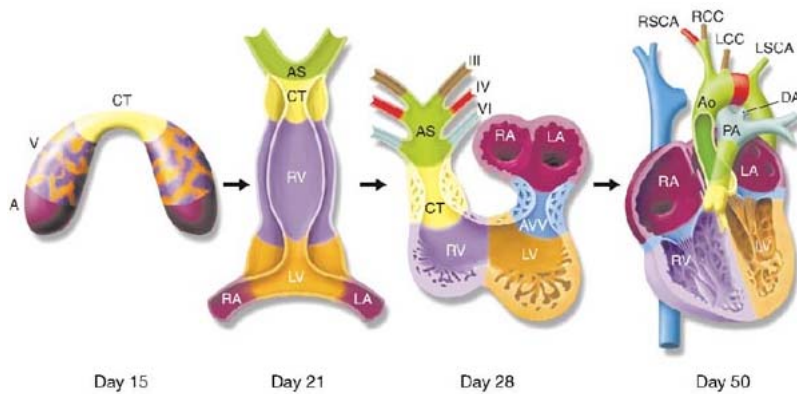


Overview of cardiac development



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Illustrations depict cardiac development with colour coding of morphologically related regions, seen from a ventral view. Cardiogenic precursors form a crescent (left-most panel) that is specified to form specific segments of the linear heart tube, which is patterned along the anterior–posterior axis to form the various regions and chambers of the looped and mature heart. Each cardiac chamber balloons out from the outer curvature of the looped heart tube in a segmental fashion. Neural crest cells populate the bilaterally symmetrical aortic arch arteries (III, IV and VI) and aortic sac (AS) that together contribute to specific segments of the mature aortic arch, also colour coded. Mesenchymal cells form the cardiac valves from the conotruncal (CT) and atrioventricular valve (AVV) segments. Corresponding days of human embryonic development are indicated. A, atrium; Ao, aorta; DA, ductus arteriosus; LA, left atrium; LCC, left common carotid; LSCA, left subclavian artery; LV, left ventricle; PA, pulmonary artery; RA, right atrium; RCC, right common carotid; RSCA, right subclavian artery; RV, right ventricle; V, ventricle.

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1.5.3. Morphologie und Funktionsweise des adulten Säugetierherzens.

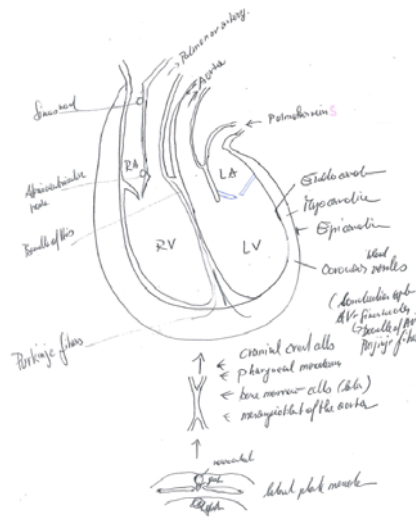
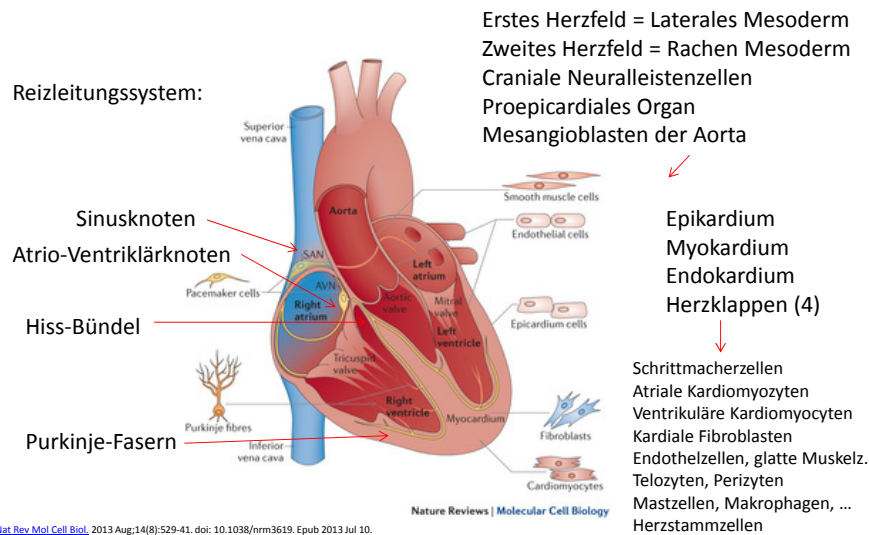


Fig. 1. The adult mammalian heart. The adult mammalian heart is made up of four chambers: the right and left ventricles (RV and LV) and right and left atria (RA and LA). The ventricles are separated by the interventricular septum (IS). The vena cava and the aorta carry the flow of blood to and from the heart, respectively. Blood low in oxygen (blue arrows) from the different tissues is collected into the right atrium via the superior and inferior vena cava and flows to the lungs through the right ventricle. Oxygenated blood (red arrows) from the lungs flows into the left atrium and is pumped into the aorta by the left ventricle. This system allows oxygenated and non-oxygenated blood to be completely separate.

Abbildung aus :<http://dev.biologists.org/content/143/8/1242>

Aufbau des Säugetierherzens und die darin vorkommenden wichtigsten Zelltypen



Nat Rev Mol Cell Biol. 2013 Aug;14(8):529-41. doi: 10.1038/nrm3619. Epub 2013 Jul 10.
Mending broken hearts: cardiac development as a basis for adult heart regeneration and repair.
Xin M¹, Olson EN, Bassel-Duby R.

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Detailliertere Beschreibung der Gastrulation:

<http://www.sciencedirect.com/science/article/pii/S0959437X10000973>

<http://www.sciencedirect.com/science/article/pii/S0925477397001238>

<http://www.nature.com/nrg/journal/v8/n5/full/nrg2084.html>

Sehr gute Bilder zur Herzentstehung:

<http://circres.ahajournals.org/content/111/10/1323.long>

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