Handflächen von Säugern

- R: Radius (Speiche)
- U: Ulna (Ellenbogen)
- A-G: Knöchern des Carpus (Handwurzel)
- E: Scaphoidum (Kuhhändchen)
- D: Lunare (Mondhändchen)
- C: Trapezium (kleinigeldiges Bein)
- B: Trapezium (großigeldiges Bein)
- F: Capitatum (Kopf) (kleines Knochlein)
- P: Prox. (Prox. (Knochen der Finger))
- X: Metacarpus (Fingerknochen)

Die Zahlen 1-5 bezeichnen die Finger (1 Daumen, 5 kleiner Finger)
Figure 19.4 The same set of instructions forms the nervous systems of both protostomes and deuterostomes.

DEVELOPMENTAL BIOLOGY, 9e, Figure 19.4

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Figure 8.30 The same set of instructions forms the nervous systems of both protostomes and deuterostomes.

DEVELOPMENTAL BIOLOGY, 9e, Figure 8.30

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Figure 19.2  The *Pax6* gene for eye development is an example of a gene ancestral to both protostomes and deuterostomes.

Figure 19.7  Loss of limbs in snakes (Part 1)
Figure 19.7  Loss of limbs in snakes (Part 2)
Figure 19.7  Loss of limbs in snakes (Part 3)

(C) Anterior  Posterior

Chick

Forelimb  Flank  Hindlimb

Hoxc8  Hoxc6

Python

Flank  Hindlimb

Hoxc6  Hoxc8
Figure 13.3  Emergence of the limb bud (Part 2)

(A)

Epaxial myotome bud
Myotome
Spinal cord
Sclerotome
Notochord
Pronephron
Endoderm

Central dermatome
Hypaxial myotome bud
Limb muscle precursors
Limb bud
Limb skeletal precursors
Lateral plate mesoderm
Figure 13.5 Fgf10 expression and action in the developing chick limb

Figure 13.6 Molecular model for initiation of the limb bud in the chick between 48 and 54 hours of gestation
**Figure 19.8** Heterochrony in flipper development of the spotted dolphin (Part 2)

<table>
<thead>
<tr>
<th>Duration of limb outgrowth</th>
<th>Hindlimb bud</th>
<th>Normal</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>Limb reduction (e.g., whale hindlimb)</td>
<td>Typical digits (Archaeocetes)</td>
<td>Hyperphalangpy (toothed whales such as dolphins)</td>
</tr>
</tbody>
</table>

**Figure 13.8** Scanning electron micrograph of an early chick forelimb bud, with the apical ectodermal ridge in the foreground.
Figure 13.9  Summary of experiments demonstrating the effect of the apical ectodermal ridge (AER) on the underlying mesenchyme

Figure 19.8  Heterochrony in flipper development of the spotted dolphin (Part 1)
Figure 19.8 Heterochrony in flipper development of the spotted dolphin (Part 2)

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</tbody>
</table>

Figure 13.10 Fgf8 in the apical ectodermal ridge

(A) (B) (C)
Figure 19.9  Correlation between beak shape and the expression of Bmp4 in Darwin’s finches

Figure 19.10  Correlation between beak length and the amount of calmodulin (CaM) gene expression in Darwin’s finches
Figure 19.11 Role of BMP4 and calmodulin (CaM) in beak evolution in Darwin’s finches

(A) Length
(B) Mixed diet of seeds and insects

Ancestral sharp-beaked finch

Low BMP4:
low beak depth/width
Low CaM:
short beak

Low BMP4:
low beak depth/width
High CaM:
long beak

Cactus finch
(G. scandens)

Low BMP4:
mixed diet
High CaM:
long beak

Large cactus finch
(G. conirostris)

Moderate BMP4:
mixed diet
Low CaM:
short beak

Medium ground finch
(G. fortis)

Early/high BMP4:
hard seeds
Low CaM:
short beak

Crushing hard/large seeds

Crushing seeds

Probing cactus flowers and fruit

Probing cactus flowers and fruit

Low BMP4:
mixed diet
High CaM:
long beak

Cactus finch
(G. scandens)

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mixed diet
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