

c) ~~Fill in the table below. Choose from options in parentheses. 9 points~~

Region	ZPA	AER	Mesoderm
Factor	Sonic Hedgehog (Shh)	Fgf8	Tbx5
Class of Protein	Secreted	Secreted	Transcription Factor
(Determinant/ Inducer)			
Factor binds to what? (DNA, RNA, ER, Golgi, receptor, ligand)			
Factor binds where? (ZPA, AER, Mesoderm)			

Forelimbs and hindlimbs are clearly different from one another in the shape of the bones and digits (fingers or toes). You perform a series of transplants between early fore and hindlimb buds to determine what tissues are pivotal in deciding whether a forelimb (FL) versus hindlimb (HL) forms.

	Donor	Substitute for	Result
i.	HL ZPA	FL ZPA	FL
ii.	HL AER	FL AER	FL
iii.	HL mesoderm after migration	FL mesoderm	HL
iv.	HL mesoderm before migration	FL mesoderm	no limb
v.	FL ZPA	HL ZPA	HL
vi.	FL AER	HL AER	HL
vii.	FL mesoderm after migration	HL mesoderm	FL
viii.	FL mesoderm before migration	HL mesoderm	no limb

d) The tissue(s) defining limb identity (forelimb vs hindlimb) is/are ...(circle one or more)

AER

ZPA

mesoderm

e) When has the forelimb versus hindlimb difference been determined?

before migration

after differentiation

after migration

c) ~~Fill in the table below. Choose from options in parentheses. 9 points~~

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Factor	Sonic Hedgehog (Shh)	Fgf8	Tbx5
Class of Protein	Secreted	Secreted	Transcription Factor
(Determinant/ Inducer)	Inducer	Inducer	Determinant
Factor binds to what? (DNA, RNA, ER, Golgi, receptor, ligand)	Receptor	Receptor	DNA
Factor binds where? (ZPA, AER, Mesoderm)	AER	Mesoderm	Mesoderm

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AER

ZPA

mesoderm

e) When has the forelimb versus hindlimb difference been determined?

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