

**HERPETOLOGÍA,** *UNIVERSIDAD AUTÓNOMA DEL ESTADO DE MÉXICO*  
**2016**

**FACULTAD DE CIENCIAS**

**LICENCIATURA EN BIOLOGÍA**

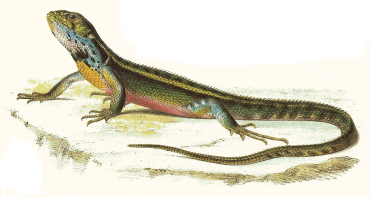
# **MATERIAL DIDÁCTICO** **VISIÓN**

**UNIDAD DE APRENDIZAJE**

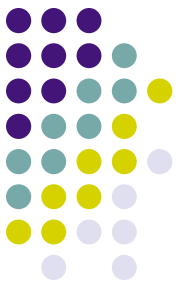
**HERPETOLOGÍA**

**UNIDAD IV. 4.1 PRIMERA PARTE**

*Autor: M. en C. XÓCHITL AGUILAR MIGUEL*

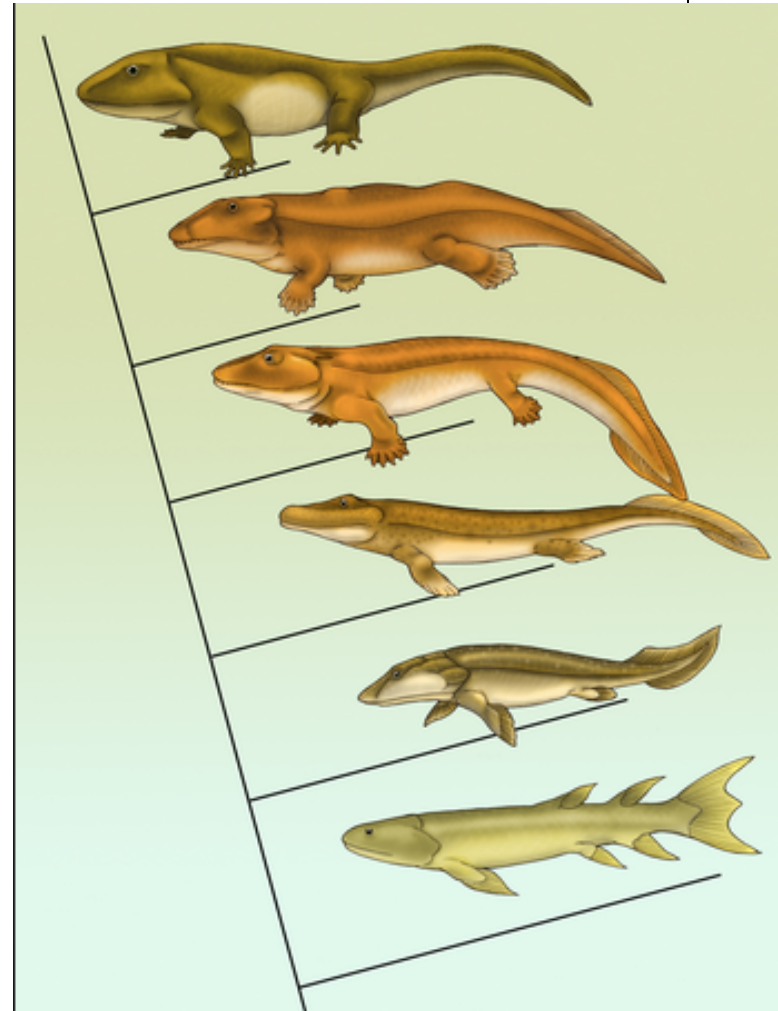


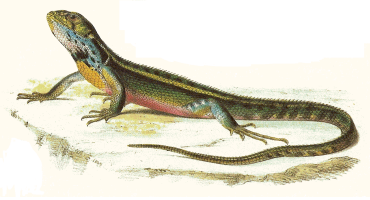
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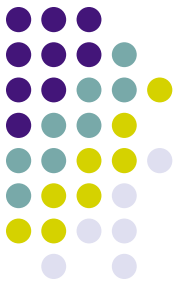
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2016**

- AMBIENTES ACUATICO-TERRESTRE
- FERTILIZACIÓN INTERNA
- INDEPENDENCIA
- DESARROLLO DIRECTO
- HUEVO AMNIÓTICO



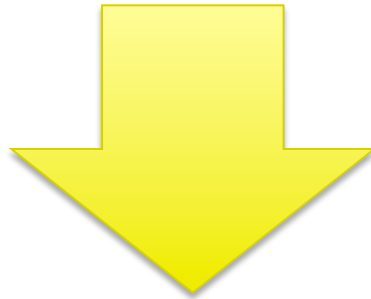


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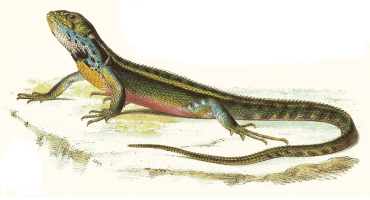
# AMNIOTAS

REPTILES AVES MAMÍFEROS



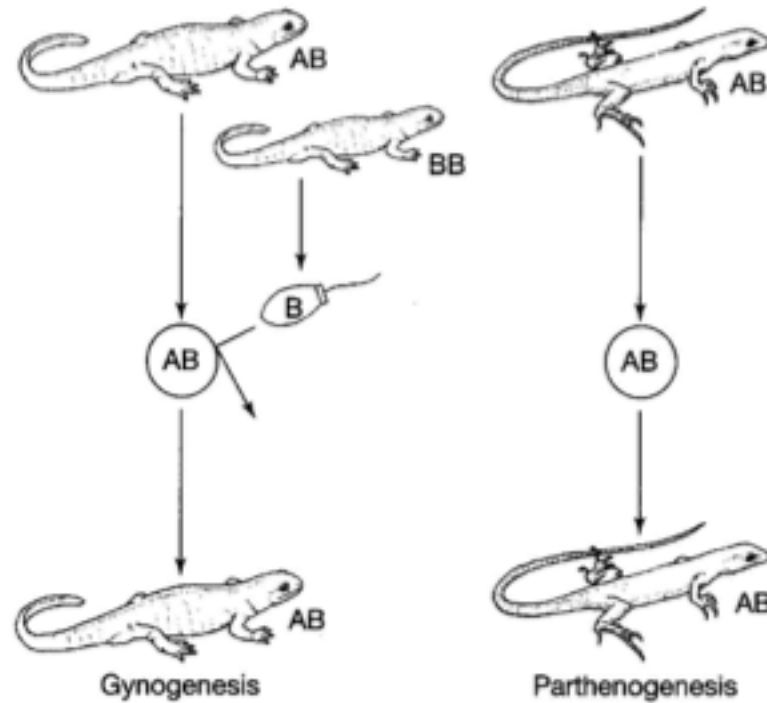
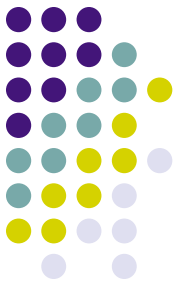
DIVERSIDAD EXITOSA

**TETRAPODOS**



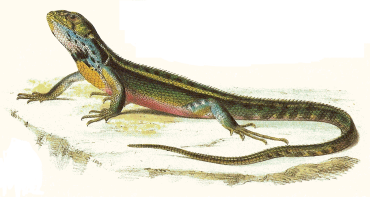
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# REPRODUCCIÓN SEXUAL y ASEXUAL



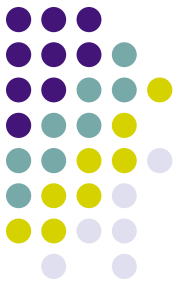
Pough et al. 2001



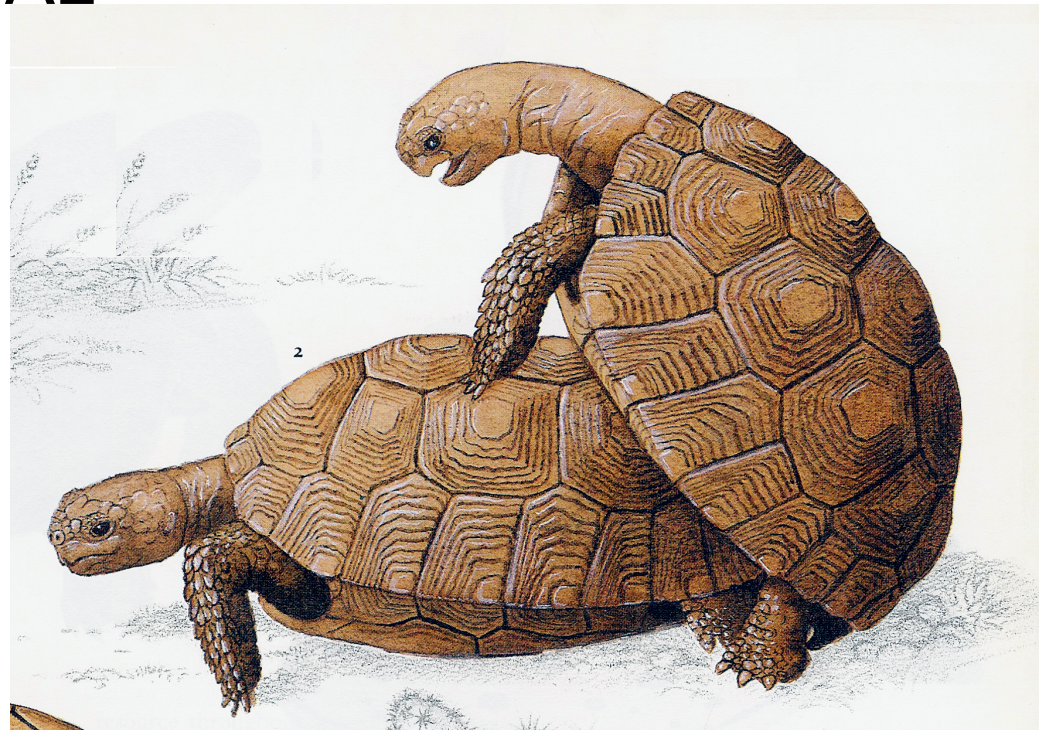


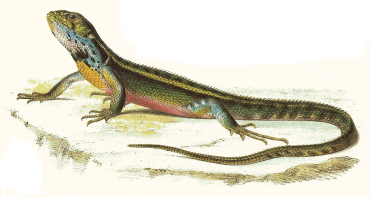
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# FERTILIZACIÓN INTERNA

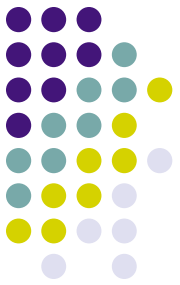


- TRANSPORTE DE ESPERMA AL TRACTO GENITAL FEMENINO





# UNIÓN DE GAMETOS

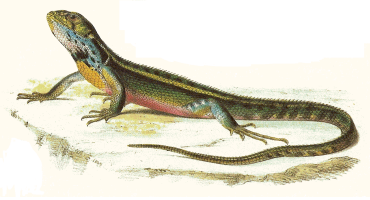


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- FERILIZACIÓN INTERNA
- ESPERMATOZOIDES
- ÓRGANOS COPULADORES
- MORFOLOGÍA, NÚMERO

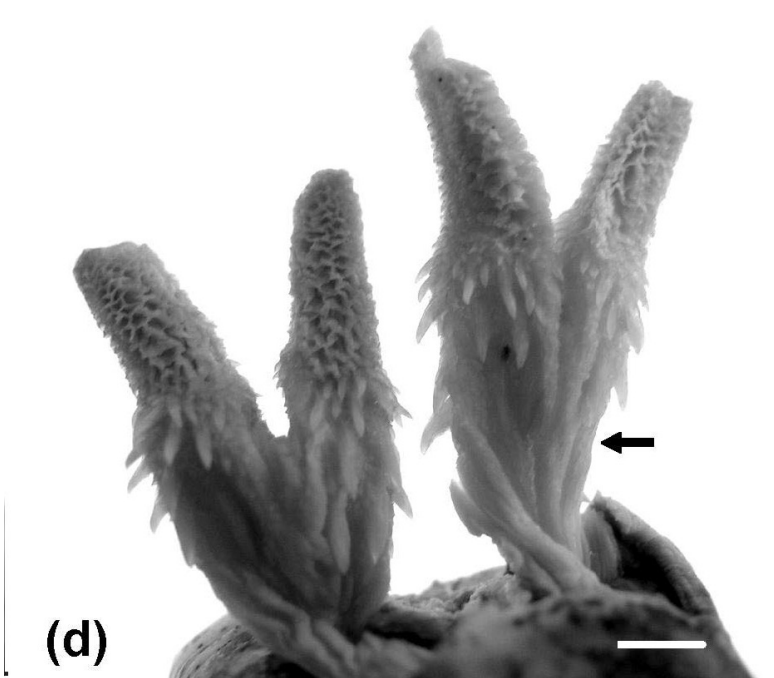
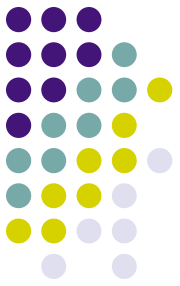
SPHENODONTIDOS—APOSICIÓN DE CLOACAS

TORTUGAS Y COCODRILOS---PENES  
SQUAMATA--HEMIPENES



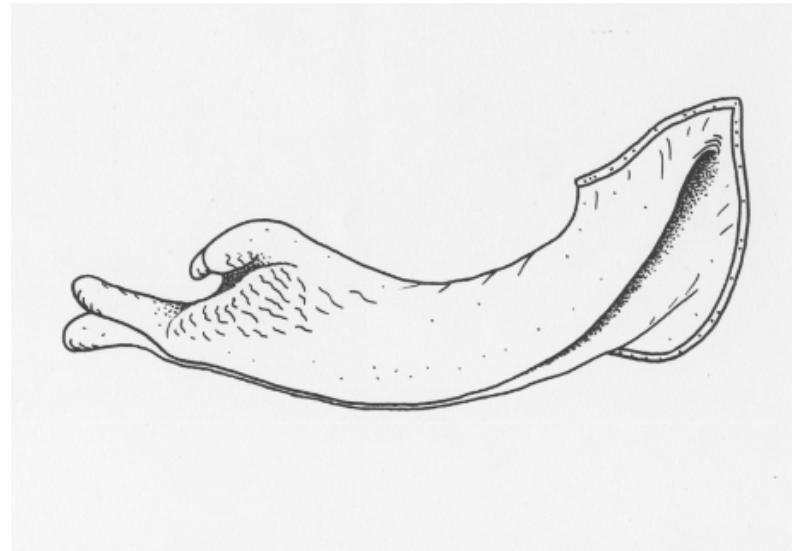
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# ORGANOS COPULADORES



Hemipene de Viperido  
Solo uno es funcional

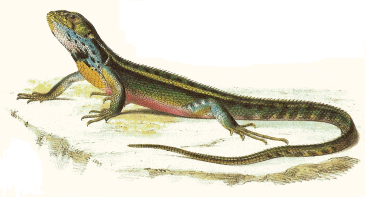
\*\*\* NO SON HOMOLOGOS



Pene de Cocodrilo.  
Gadow (1887)

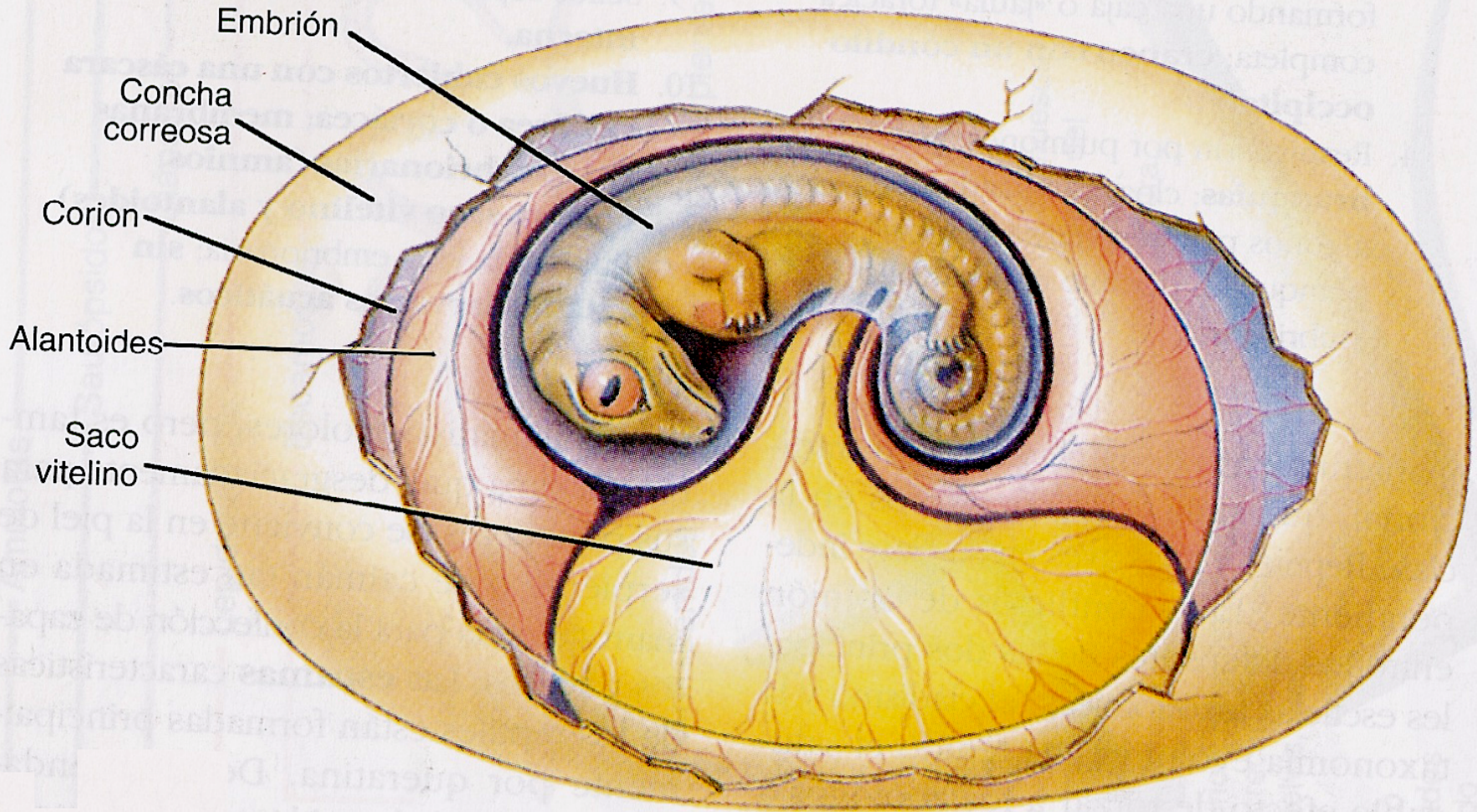
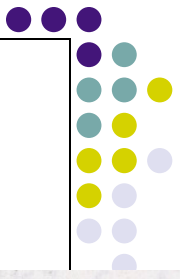
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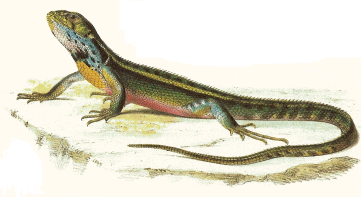




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# HUEVO AMNIÓTICO

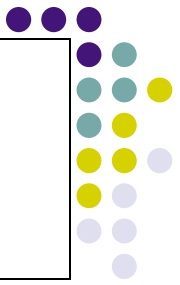




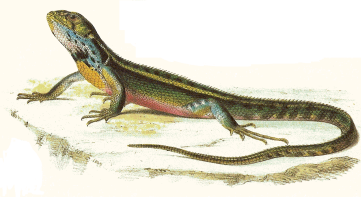
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2016**

# HUEVO AMNIÓTICO

## Actividad diagnóstica



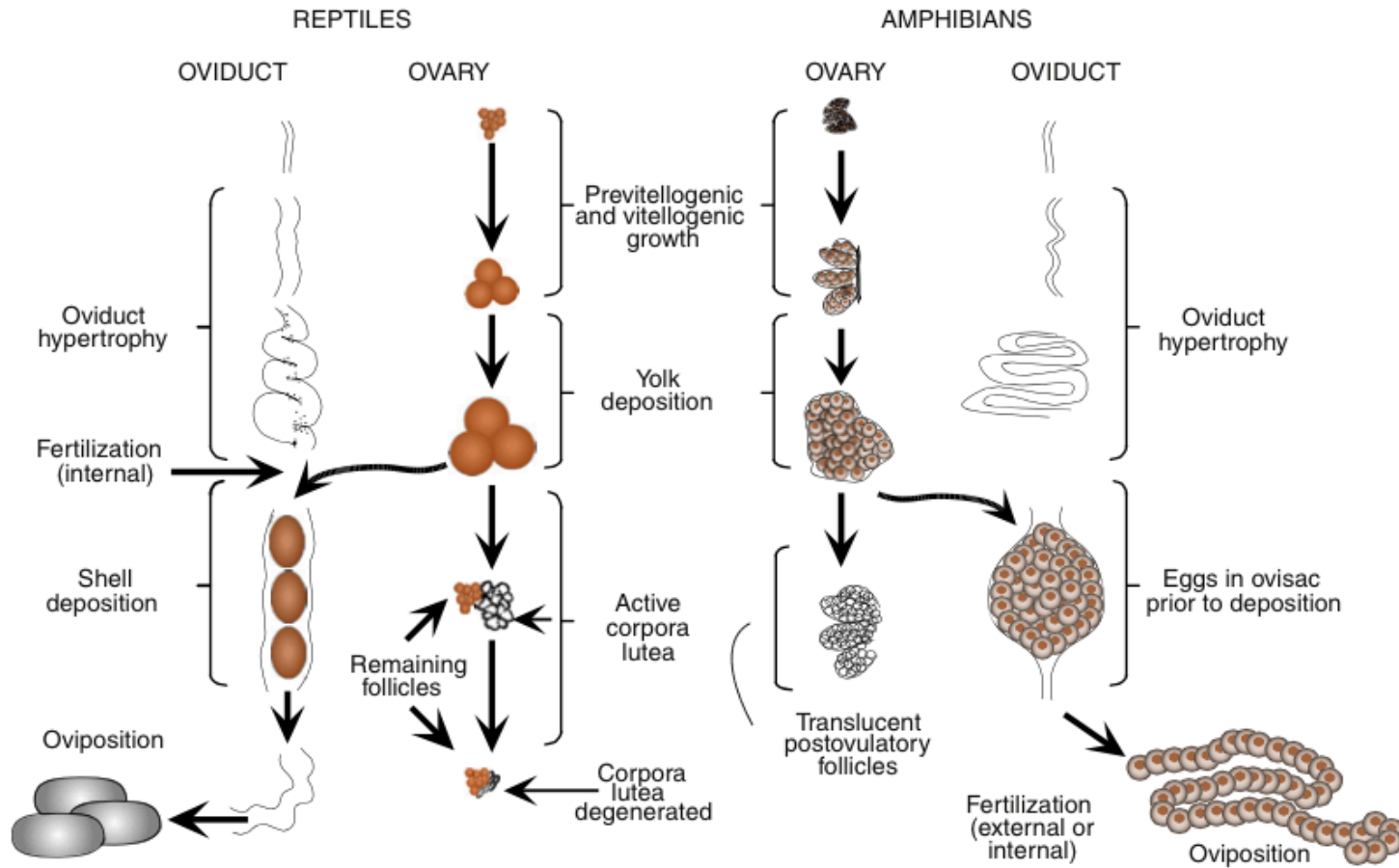
Diseñe una tabla, de tres columnas en donde enumere las membranas del huevo amniótico, estructura y función.



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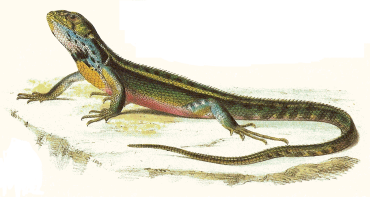
# HUEVO AMNIÓTICO

OR



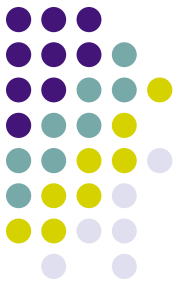
VITT & CALDWELL, 2014



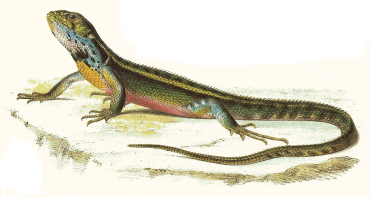


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# ACTIVIDAD DE REFORZAMIENTO

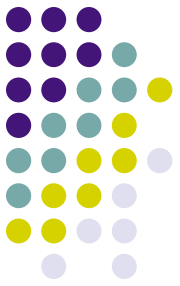


¿CUÁLES SON LAS PRINCIPALES  
DIFERENCIAS EN HUEVO Y EN  
OVIDUCTO ENTRE ANFIBIOS Y REPTILES?



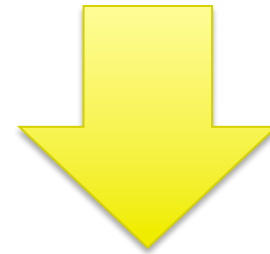
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2016**

# CICLOS REPRODUCTIVOS



SINCRONICOS

ASINCRONICOS

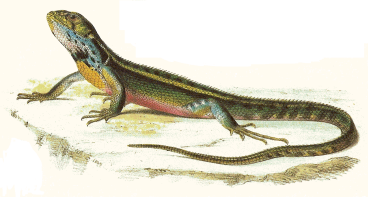


Almacenamiento de esperma

Competencia espermática

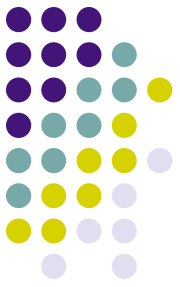
Paternidad multiple





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# ACTIVIDAD DE REFORZAMIENTO



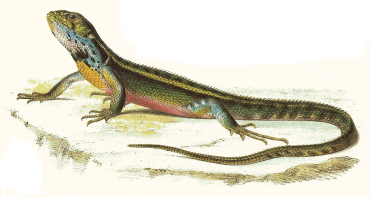
## 13 Sexual Selection and Sperm Competition in Reptiles

*M. Olsson and T. Madsen*

The University of Sydney, School of Biological Sciences, Zoology Building AO8, N.S.W.  
2006, Australia

[http://aerg.canberra.edu.au/library/sex\\_general/  
1998\\_Olsson\\_Madsen\\_sperm\\_competition\\_reptiles.pdf](http://aerg.canberra.edu.au/library/sex_general/1998_Olsson_Madsen_sperm_competition_reptiles.pdf)

**ANALIZAR ES PRESENTE DOCUMENTO  
Y ELABORE UN ENSAYO, LAS CARÁCTERÍSTICAS  
DEL MISMO ESTAN EN LA CARPETA DE DROPBOX**



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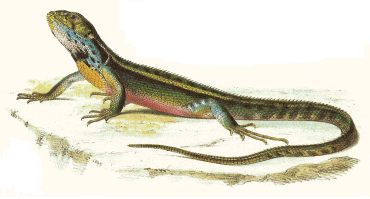
# ECOLOGÍA REPRODUCTIVA



## Ecología del nido

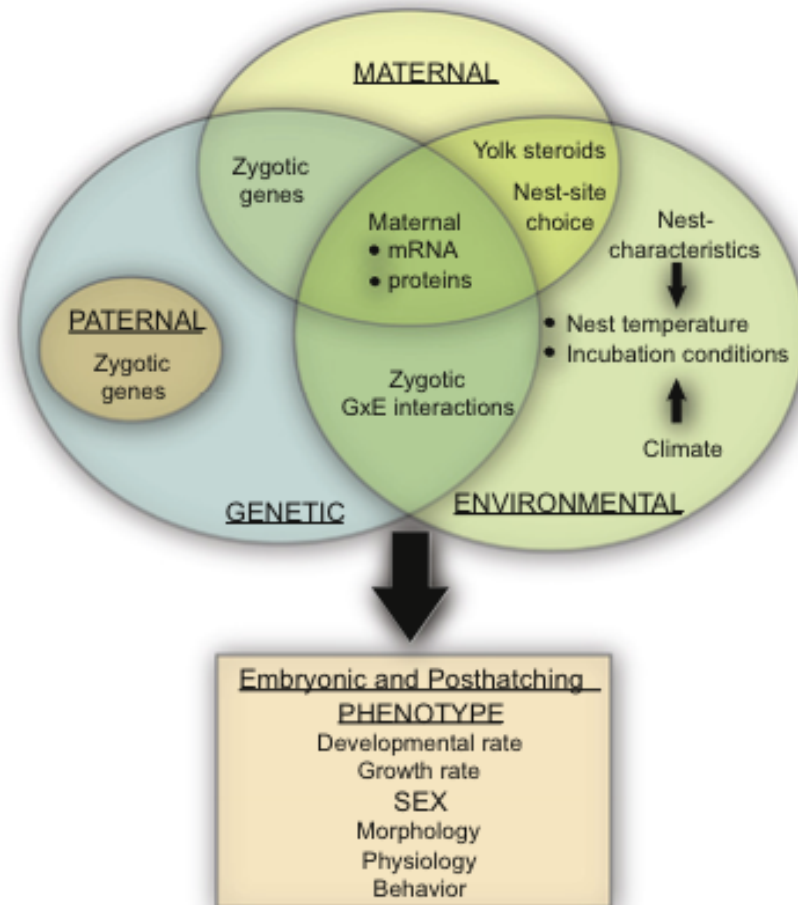
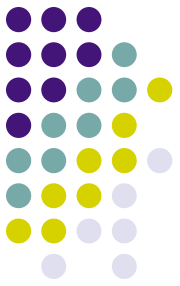


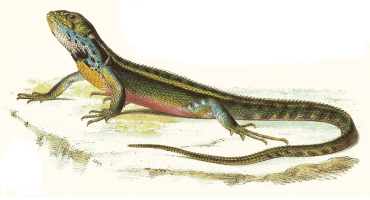
Temperatura      Húmedad  
Conducta de cuidado



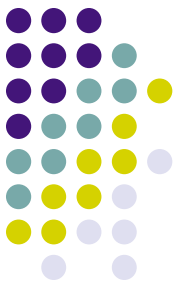
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# DETERMINACIÓN DEL SEXO





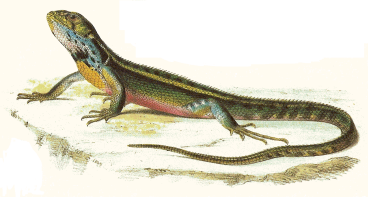
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2016**



## FASES DE LA DETERMINACIÓN DEL SEXO

- \***Genético**
- \***Gonadal**
- \***Hormonal**
- \***Cerebral**
- \***Fenotípico**
- \***Conductual**





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# DETERMINACIÓN DEL SEXO

**DSG**

# CROMOSOMAS SEXUALES

*Table 7-1* Distribution of genetic sex determination (GSD) and temperature-dependent sex determination (TSD) in amphibians and reptiles. Patterns are summarized for each family in which the condition is known. XY and ZW systems indicate male and female heterogamety, respectively. Data indicate only the occurrence of each pattern in particular families. Only those families for which GSD or TSD have been studied are listed.

Taxon	GSD: Heterogamety	TSD	Taxon	GSD: Heterogamety	TSD
Urodela			Emydidae	ZW, XY	Yes
Ambystomatidae	ZW	No	Kinosternidae	—	Yes
Plethodontidae	ZW, XY	No	Podocnemidae	—	Yes
Proteidae	XY	No	Pelomedusidae	—	Yes
Salamandridae	ZW, XY	No	Staurotypidae	XY	No
Sirenidae	ZW	No	Testudinidae	—	Yes
Anura		No	Trionychidae	—	No
Bombinatoridae	XY	No	Crocodylia	—	Yes
Bufonidae	ZW	No	Sphenodontida	—	Yes
Discoglossidae	ZW	No	Squamata		
Hylidae	XY	No	“Agamidae”	Yes	Yes
Leiopelmatidae	ZW, OW	No	Amphisbaenia	ZW	?
“Leptodactylidae”	XY	No	Anguidae	—	Yes
Pelodytidae	XY	No	Boidae	ZW	No
Pipidae	ZW	No	Colubridae	ZW	No
“Ranidae”	ZW, XY	No	Elapidae	ZW, ZZW, ZWW	No
Testudines			Gekkonidae	ZW, ZZW, XY, XXY	Yes
Bataguridae	ZW, XY	Yes	Iguanidae	XY, XXY, XO	?
Carettochelyidae	—	Yes	Lacertidae	ZW, ZZW	?
Chelidae	XY	No	Pygopodinae	XY, XXY	—
Cheloniidae	—	Yes	Scincidae	XY, XXY	No
Chelydridae	—	Yes	Teiidae	XY	No
Dermatemydidae	—	Yes	Varanidae	ZW	?
Dermochelyidae	—	Yes	Viperidae	ZW	No

Source: Cree et al. 1995, Hillis and Green 1990, Janzen and Paukstis 1991, Lang and Andrews 1994, and Viets et al. 1994.