



**UNIVERSIDAD DE BUENOS AIRES. FACULTAD DE MEDICINA  
II CÁTEDRA DE MICROBIOLOGÍA, PARASITOLOGÍA E INMUNOLOGÍA**

**MICROBIOLOGÍA Y PARASITOLOGÍA I  
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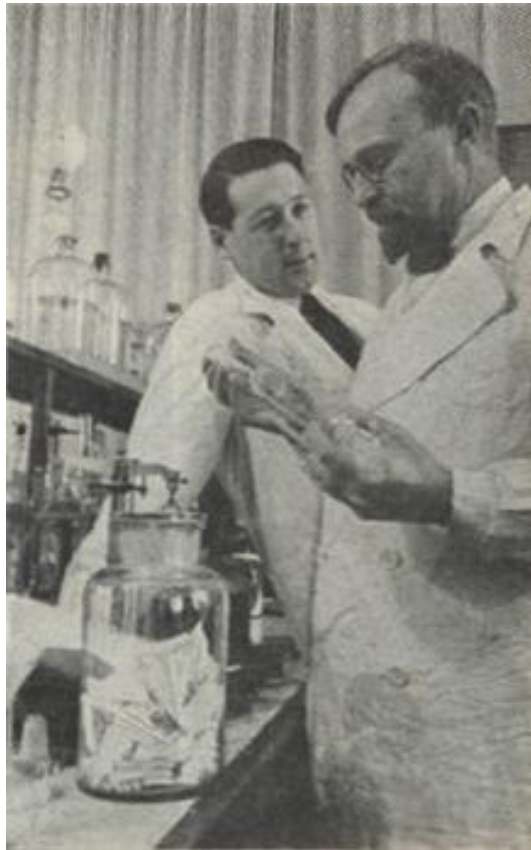
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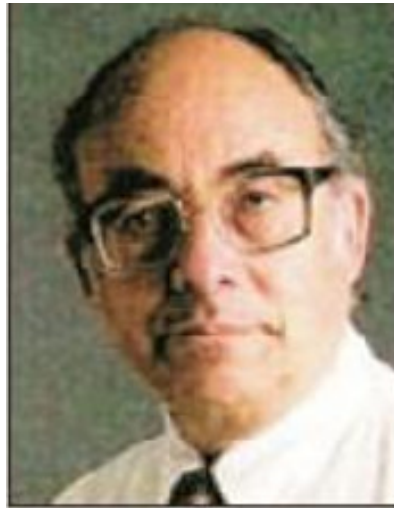
***Doctor en Medicina (UBA)***

**¿DE DÓNDE PROVIENEN LOS  
MICROORGANISMOS?**

# **EL ORIGEN DE LA VIDA EN LA TIERRA**



**ALEKSANDR OPARIN (1894-1980)**



**Stanley L. Miller**

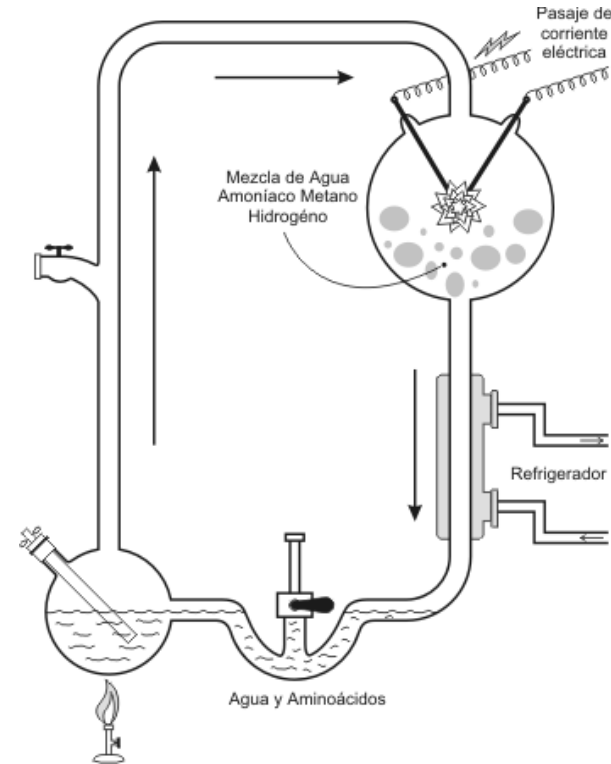
**1930-2007**



**Harold C. Urey**

**1893-1981**

# EL EXPERIMENTO DE MILLER Y UREY (1952)

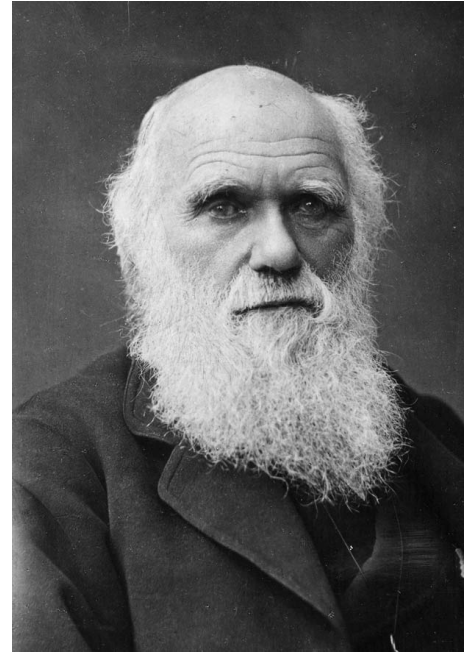


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# LA EVOLUCIÓN BIOLÓGICA



**JEAN BAPTISTE DE  
LAMARCK (1744-1829)**



**CHARLES DARWIN  
(1809-1882)**

**LAMARCK: LOS CARACTERES ADQUIRIDOS SE HEREDAN.**

**DARWIN: LOS RASGOS GENÉTICOS SE HEREDAN.**

## **POSTULADOS DE LA EVOLUCIÓN BIOLÓGICA:**

- **HAY MÁS SERES VIVOS QUE LOS QUE EL ECOSISTEMA PUEDE MANTENER.**
- **SE ESTABLECE UNA LUCHA POR LA SUPERVIVENCIA.**
- **GANAN LOS MEJOR ADAPTADOS.**
- **ÉSTOS LES TRANSMITEN A SUS DESCENDENCIA LOS GENES QUE LES PERMITIERON SOBREVIVIR.**
- **LOS INDIVIDUOS CON ESOS GENES SON LOS QUE PERSISTEN. LOS DEMÁS MUEREN.**
- **LAS DIFERENCIAS ENTRE LOS INDIVIDUOS SE DIERON POR “MUTACIONES”.**

*“Nada tiene sentido en biología si no es a la luz de la evolución”*

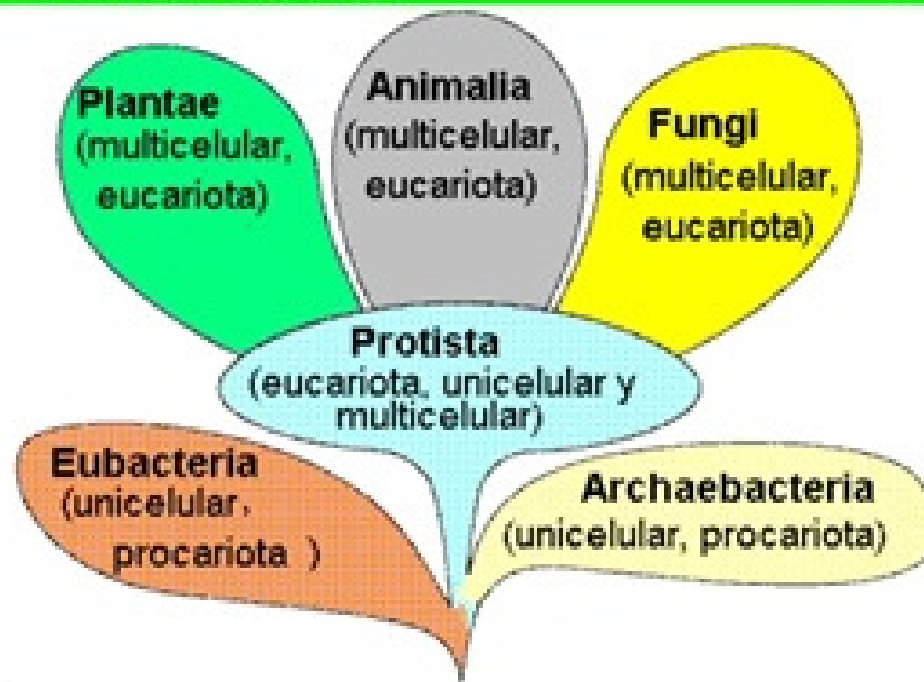


*Theodosius Dobzhansky (1900-1975)*



# **LA EVOLUCIÓN Y LA MICROBIOLOGÍA MÉDICA**

- **EN CADA COLONIA BACTERIANA (1.000.000 – 100.000.000 DE INDIVIDUOS) HAY 1 QUE ESPONTÁNEAMENTE ES MUTANTE.**
- **MUCHOS VIRUS PRESENTAN MUTACIONES CONSTANTEMENTE.**
- **LOS HONGOS SE HAN ADAPTADO A DISTINTOS AMBIENTES.**
- **LOS PARÁSITOS SUFREN MUTACIONES ADAPTATIVAS**



# **¿CÓMO SE GENERA EL CONOCIMIENTO MICROBIOLÓGICO?**

**POR LA APLICACIÓN DEL “MÉTODO  
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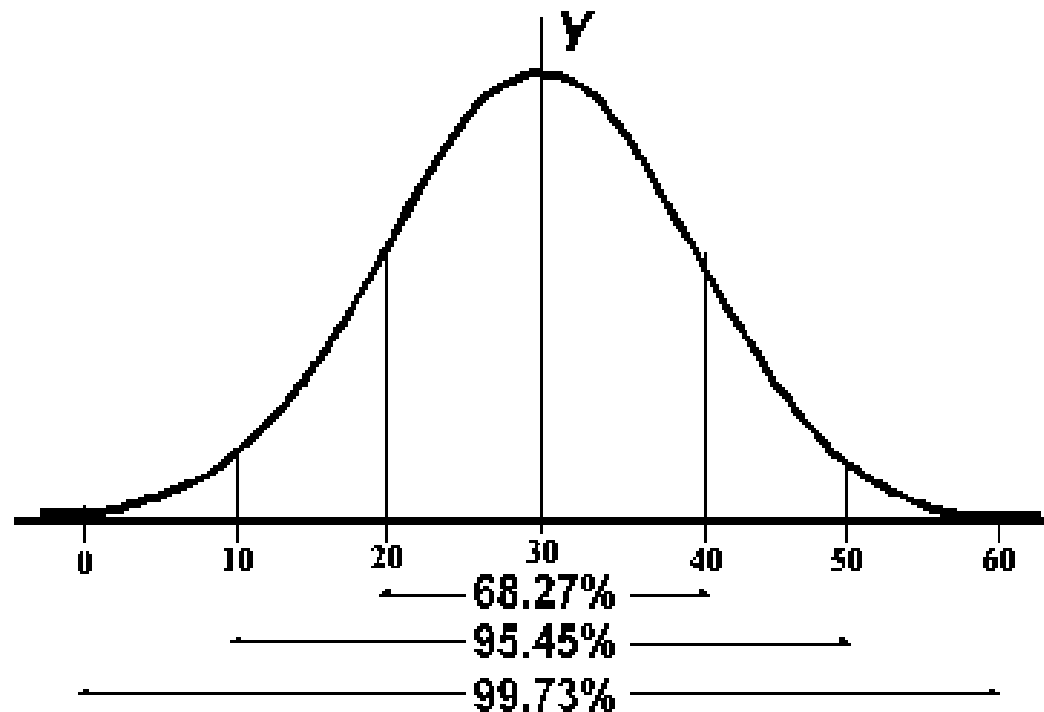
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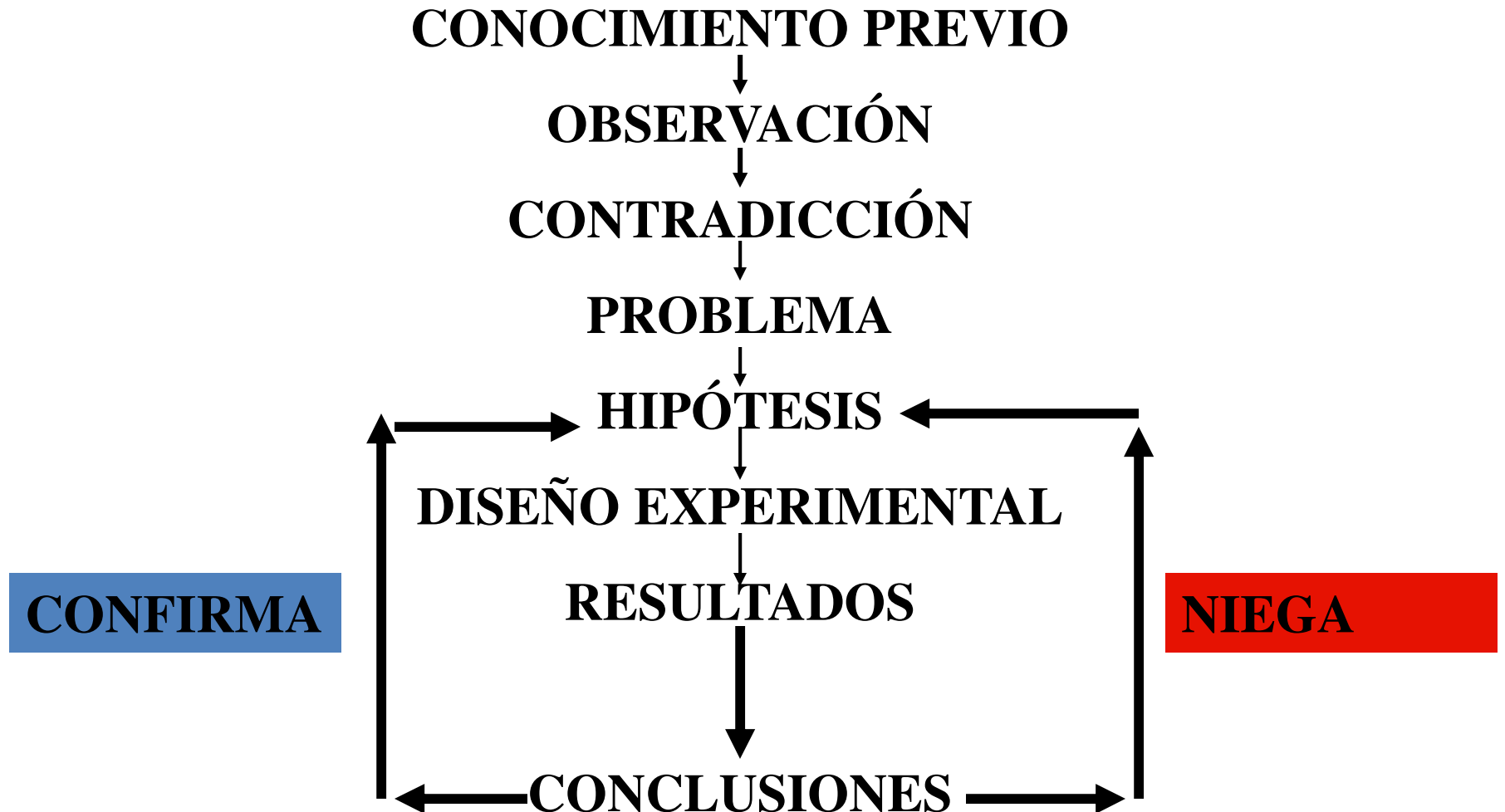
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# EN LAS CIENCIAS FÁCTICAS EL CRITERIO DE “VERDAD” ES ESTADÍSTICO



# EL MÉTODO EXPERIMENTAL



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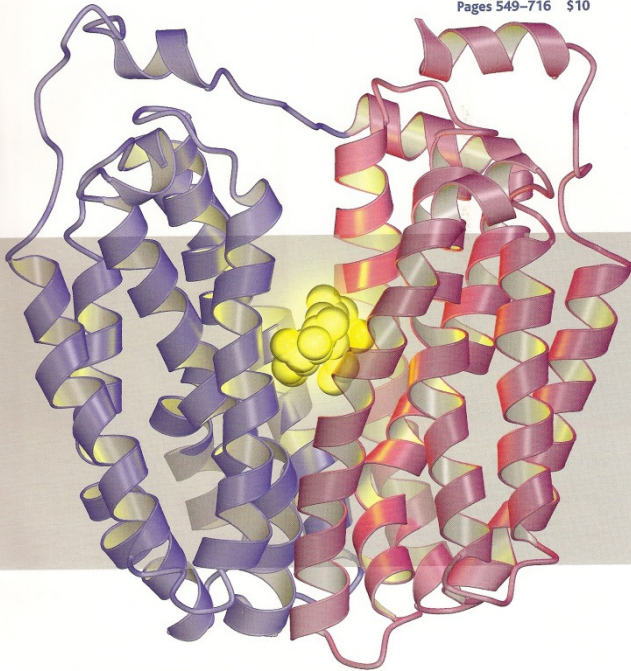


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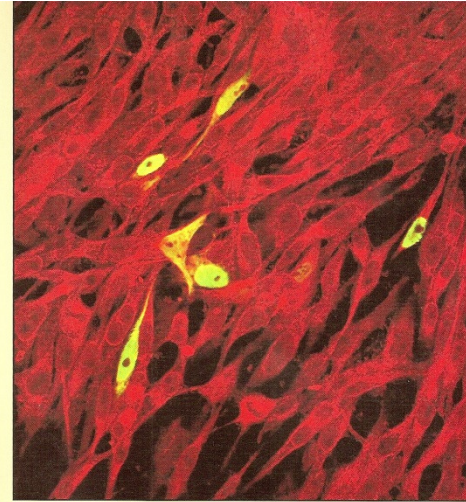
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DECEMBER 2001, VOLUME 75, NUMBER 24

# **MÉTODO CIENTÍFICO Y MÉTODO DIAGNÓSTICO**

## **EL MÉTODO DIAGNÓSTICO**

- 1. CONOCIMIENTO DE LOS FACTORES AMBIENTALES.**
- 2. ANAMNESIS (INTERROGATORIO)**
- 3. EXAMEN FÍSICO:**
  - a. Inspección.**
  - b. Palpación.**
  - c. Percusión.**
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- ☐ [Serologic vaccination response after solid organ transplantation: a systematic review.](#)

Eckerle I, Rosenberger KD, Zwahlen M, Junghanss T.  
PLoS One. 2013;8(2):e56974. doi: 10.1371/journal.pone.0056974. Epub 2013 Feb 22.  
PMID: 23451126 [PubMed - in process]

- ☐ [A threshold method for immunological correlates of protection.](#)

2. Chen X, Bailleux F, Desai K, Qin L, Dunning AJ.  
BMC Med Res Methodol. 2013 Mar 1;13(1):29. [Epub ahead of print]  
PMID: 23448322 [PubMed - as supplied by publisher]

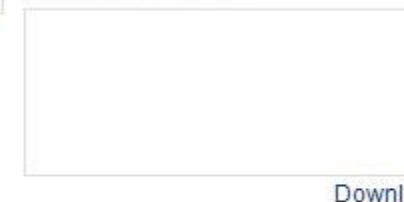
- ☐ [Rubella in Israel after the MMR vaccine: Elimination or containment?](#)

3. Anis E, Grotto I, Moerman L, Kaliner E, Warshavsky B, Slater PE, Lev B.  
J Public Health Policy. 2013 Feb 28. doi: 10.1057/jphp.2013.8. [Epub ahead of print]  
PMID: 23447030 [PubMed - as supplied by publisher]

- ☐ [Vaccine-preventable diseases and vaccination rates in South Dakota.](#)

4. Kightlinger L.  
S D Med. 2013;Spec no:84-9.  
PMID: 23444597 [PubMed - in process]

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1. Carrillo-Santistev P, Lopalco PL.  
Clin Microbiol Infect. 2012 Oct;18 Suppl 5:50-6. doi: 10.1111/j.1469-0691.2012.03982.x. Epub  
2012 Aug 27. **Review.**

PMID: 23051058 [PubMed - indexed for MEDLINE]

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Larson H, Brocard Paterson P, Erond N.  
Drug Saf. 2012 Nov 1;35(11):1053-9. doi: 10.2165/11635880-000000000-00000. **Review.**

PMID: 23061781 [PubMed - indexed for MEDLINE]

[Related citations](#)☐ [Immunising the HIV-infected child: a view from sub-Saharan Africa](#)

3. Mphahlele MJ, Mda S.  
Vaccine. 2012 Sep 7;30 Suppl 3:C61-5. doi: 10.1016/j.vaccine.2012.02.040. **Review.**

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1. Tahara M, Takeda M.  
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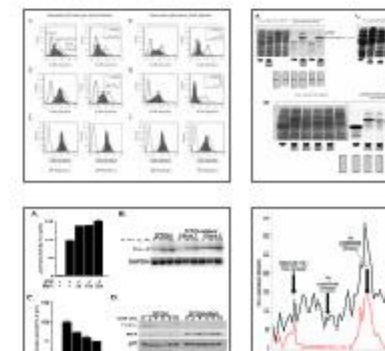
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Avota E, Gassert E, Schneider-Schaulies S. Viruses. 2011 Feb;3(2):102-17. doi: 10.3390/V3020102. Epub 2011 Jan 26. **Review**. PMID: 22049305 [PubMed - indexed for MEDLINE] [Free PMC Article](#) [Related citations](#)

☐ [Designing vaccines based on biology of human dendritic cell subsets](#)

3. Palucka K, Banchereau J, Mellman I. Immunity. 2010 Oct 29;33(4):464-78. doi: 10.1016/j.immuni.2010.10.007. **Review**. PMID: 21029958 [PubMed - indexed for MEDLINE] [Free PMC Article](#) [Related citations](#)

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Mol Ther. 2010 Oct;18(10):1748-57. doi: 10.1038/mt.2010.178. Epub 2010 Aug 24. **Review.**

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- ☒ [Measles virus-induced suppression of immune responses.](#)

5. Griffin DE.  
Immunol Rev. 2010 Jul;236:176-89. doi: 10.1111/j.1600-065X.2010.00925.x. **Review.**

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- ☐ [Booster vaccinations: can immunologic memory outpace disease pathogenesis?](#)

6. Pichichero ME.  
Pediatrics. 2009 Dec;124(6):1633-41. doi: 10.1542/peds.2008-3645. Epub 2009 Nov 23. **Review.**

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## Measles virus-induced suppression of immune responses.

[Griffin DE.](#)

W. Harry Feinstone Department of Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD 21205, USA. [dgriffin@jhsph.edu](mailto:dgriffin@jhsph.edu)

### Abstract

Measles is an important cause of child mortality that has a seemingly paradoxical interaction with the immune system. In most individuals, the immune response is successful in eventually clearing measles virus (MV) infection and in establishing life-long immunity. However, infection is also associated with persistence of viral RNA and several weeks of immune suppression, including loss of delayed type hypersensitivity responses and increased susceptibility to secondary infections. The initial T-cell response includes CD8+ and T-helper 1 CD4+ T cells important for control of infectious virus. As viral RNA persists, there is a shift to a T-helper 2 CD4+ T-cell response that likely promotes B-cell maturation and durable antibody responses but may suppress macrophage activation and T-helper 1 responses to new infections. Suppression of mitogen-induced lymphocyte proliferation can be induced by lymphocyte infection with MV or by lymphocyte exposure to a complex of the hemagglutinin and fusion surface glycoproteins without infection. Dendritic cells (DCs) are susceptible to infection and can transmit infection to lymphocytes. MV-infected DCs are unable to stimulate a mixed lymphocyte reaction and can induce lymphocyte unresponsiveness through expression of MV glycoproteins. Thus, multiple factors may contribute both to measles-induced immune suppression and to the establishment of durable protective immunity.

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**EJEMPLO: Pasteur, L., Koch, R., Roux, E., Ehrlich, P. About the microbial pathogenesis of human diseases. *J. Intl. Microbiol.* 32:606-609, 1874.**