

## CURRICULUM VITAE

### MARIO RENATO CAPECCHI

Title: Professor  
Date and Place of Birth: October 6, 1937 - Verona, Italy  
Citizenship: U.S.  
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#### Education:

1961 B.S. Chemistry and Physics  
Antioch College, Yellow Springs, Ohio  
1967 Ph.D. Biophysics  
Harvard University, Cambridge, Massachusetts

#### Positions Held:

1969—1971	Harvard Medical School	Assistant Professor
1971—1973	Harvard Medical School	Associate Professor
1973—Present	University of Utah	Professor of Biology
1982—Present	University of Utah School of Medicine	Adjunct Professor of Oncological Sciences, Division of Molecular Biology and Genetics
1988—2015	Howard Hughes Medical Institute	Investigator
1989—Present	University of Utah School of Medicine	Professor of Human Genetics
2002—2008	University of Utah School of Medicine	Co-Chairman of the Department of Human Genetics

#### Honors and Awards:

1967—1969 Junior Fellow of the Society of Fellows, Harvard University  
1969 American Chemical Society Award in Biochemistry  
1969—1972 Established Investigator of the American Heart Association  
1971 America's Ten Outstanding Young Men Award  
1972—1974 National Institutes of Health Career Development Award  
1974—1979 American Cancer Society Faculty Research Award  
1984—1985 Taught Cold Spring Harbor Summer Course on Microinjection and DNA Transfection  
1986 Chairman of the Gordon Conference on Molecular Genetics  
1987 Distinguished Research Award, University of Utah  
1989 Chairman of Banbury Conference on Developmental Genetics, Cold Spring Harbor  
1991—Present Member of the National Academy of Sciences  
1992—2001 NIH MERIT grant award

1992 Fifth Annual Bristol-Myers Squibb Award for Distinguished Achievement in Neuroscience Research

1993 Gairdner Foundation International Award for Achievements in Medical Science

1993—Present Distinguished Professor of Human Genetics and Biology, University of Utah

1994 General Motors Corporation's Alfred P. Sloan Jr. Prize for Outstanding Basic Science Contributions to Cancer Research

1996 Molecular Bioanalytics Prize, Germany

1996 Kyoto Prize in Basic Sciences

1997 Franklin Medal for Advancing Our Knowledge of the Physical Sciences

1998 Feodor Lynen Lectureship, Miami Biosymposium

1998 Rosenblatt Prize for Excellence

1998 Baxter Award for Distinguished Research in the Biomedical Sciences, Association of American Medical Colleges

1999 Helen Lowe Bamberger Colby and John E. Bamberger Presidential Endowed Chair in the Health Sciences Center, University of Utah

1999 Phi Kappa Phi National Honor Society

1999—2000 Lecturer in the Life Sciences for the Collège de France

2000 Horace Mann Distinguished Alumni Award, Antioch College

2000 Premio Phoenix-Anni Verdi for Genetic Research Award, Italy

2001 33<sup>rd</sup> Jiménez-Diáz Prize for Contributions to Medical Genetics, Spain

2001 Pioneers of Progress Award

2001 Albert Lasker Award for Basic Medical Research

2001 Fellow of the American Association for the Advancement of Science

2001 National Medal of Science

2002 State of Utah Governor's Science and Technology Award

2002—2011 NIH MERIT Grant Award

2002 John Scott Medal Award

2002 Shaul and Meira Massry Foundation Prize

2002 European Academy of Sciences

2003 Pezcoller Foundation-AACR International Award for Cancer Research

2002/03 Wolf Prize in Medicine

2004 Honorary Degree of Doctor of Medicine, University of Florence, Italy

2005 March of Dimes Prize in Developmental Biology

2007 Jacob Heskell Gabbay Award in Biotechnology and Medicine

2007 Nobel Laureate, Physiology or Medicine with Oliver Smithies and Martin Evans

2008 Distinguished Scientist Award, American Heart Association

2009 Member of the American Academy of Arts and Sciences

2011 Cátedra Santiago Grisolia Prize, Valencia Spain

2011 Mike Hogg Award, The University of Texas MD Anderson Cancer Center

2012 Honorary Doctorate Degree, University of Bologna Medical School, Italy

2013 Honorary Doctorate Degree, Cardiff University, United Kingdom

2013 Honorary Doctorate Degree, Ben-Gurion University, Israel

2013 Trinity College Historical Society Gold Medal for Outstanding Contributions to Public Discourse, Dublin Ireland

2014 Izatt-Christensen Lectureship, Brigham Young University, Utah

2015 American Association of Cancer Research Lifetime Achievement Award

2015 National Academy of Medicine

## Teaching Responsibilities:

Biochemistry	Eukaryotic Genetics
Cell Biology	Genetics
Developmental Genetics	Molecular Biology

## Memberships/Services:

1969—Present	Member of the American Biochemical Society
1969—Present	Member of the American Society for Biochemistry and Molecular Biology
1975—1980	Member of the National Science Foundation Advisory Panel on Genetics
1981—1985	Member of the National Inst. of Health Advisory Panel on Mammalian Genetics
1985—Present	Member of the Utah Regional Cancer Center
1987—Present	Member of the American Association for the Advancement of Science
1991—Present	Member of the Science Innovation Program Committee
1994—Present	Member of the American Society for Microbiology
1994—Present	Charter Fellow of the Molecular Medicine Society
1995—2003	Member of the New York Academy of Sciences
1995—Present	Member of the Advisory Panel for the European Molecular Biology Laboratory, Heidelberg, Germany
1997—2000	Member of the Genetical Society
1997—Present	Member of the Society for Developmental Biology
1997—2003	Member of the International Mammalian Genome Society
1997—2001	Member of the Board of Scientific Counselors, NCI
1997—Present	Fellow of the American Academy of Microbiology
1998—Present	Member of the Genetics Society of America
2000—Present	Honorary and Lifetime Member of the American Society of Hematology
2001—Present	Member of the American Society for Clinical Investigation
2009—Present	Fellow of the American Academy of Arts & Sciences

## Editorial Board Member of:

1982—Present	Somatic Cell and Molecular Biology
1982—Present	DNA
1985—Present	Molecular and Cellular Biology
1985—Present	Bio Essays
1989—Present	Technique
1990—Present	Mechanisms of Development
1994—2000	Neurobiology of Disease
1994—Present	Molecular Medicine
1994—Present	Cell Structure and Function
1995—2001	Developmental Biology
1996—1999	FASEB Journal
1998—Present	The inScight Editorial Board (Academic Press)
1998—2000	Proceedings of the National Academy of Sciences
2004	Rejuvenation Research

2010 Nanotechnology Progress International (JONPI)

Reviewer for: Cell, Current Biology, Development, Developmental Biology, Developmental Dynamics, EMBO Journal, FASEB Journal, Genes and Development, Journal of Biological Chemistry, Molecular and Cellular Biology, Nature, Nature Genetics, Proceedings of the National Academy of Sciences, Science, Trends in Genetics, Trends in Neurosciences

### Publications:

Capecchi, M. R. and G. N. Gussin (1965). Suppression *in vitro*: Identification of a serine-tRNA as a "Nonsense Suppressor." *Science* **149**:417-422. PMID: 17809404.

Adams, J. M. and M. R. Capecchi (1966). N-formylmethionine-tRNA as the initiator of protein syntheses. *Proc. Natl. Acad. Sci. USA* **55**:147-155. PMID: 5328638.

Capecchi, M. R. (1966). Initiation of *E. coli* proteins. *Proc. Natl. Acad. Sci. USA* **55**:1517-1524. PMID: 5336288.

Capecchi, M. R. (1966). Cell-free protein synthesis programmed with R17 RNA: Identification of two phage proteins. *J. Mol. Biol.* **21**:173-193. PMID: 5969761.

Bergquist, P. L. and M. R. Capecchi (1966). Fractionation of a suppressor tRNA. *J. Mol. Biol.* **19**:202-206. PMID: 5338521.

Gussin, G. N., M. R. Capecchi, J. M. Adams, J. E. Argetsinger, J. Tooze, K. Weber and J. D. Watson (1966). Protein synthesis directed by RNA phage messengers. *Cold Spring Harbor Symp. Quant. Biol.* **31**:257-271. PMID: 4866373.

Capecchi, M. R. (1967). Polycistronic messenger RNA and the phenomenon of suppression, BBA Library. In *Regulation of Nucleic Acid and Protein Synthesis* (V. V. Konigsberger and L. Bosch, Ed.), Vol. 10, pp. 243-258. Amsterdam: Elsevier Publishing Co.

Capecchi, M. R. (1967). A rapid assay for polypeptide chain termination. *Biophys. Res. Comm.* **28**:773-778. PMID: 6061555.

Capecchi, M. R. (1967). Polypeptide chain termination *in vitro*: Isolation of a release factor. *Proc. Natl. Acad. Sci. USA* **58**:1144-1151. PMID: 5233840.

Capecchi, M. R. (1967). Polarity *in vitro*. *J. Mol. Biol.* **30**:213-217. PMID: 6077936.

Capecchi, M. R. and H. A. Klein (1969). Characterization of three proteins involved in polypeptide chain termination. *Cold Spring Harbor Symp. Quant. Biol.* **28**:469-477. PMID: 4909514.

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- Capecchi, M. R. and H. A. Klein (1970). Release factors mediating termination of complete proteins. *Nature* **26**:1029-1033. PMID: 4911223.
- Klein, H. A. and M. R. Capecchi (1971). Polypeptide chain termination, purification of the release factors, R<sub>1</sub> and R<sub>2</sub> from *Escherichia coli*. *J. Biol. Chem.* **246**:1055-1061. PMID: 5543670.
- Sharp, J. D., N. E. Capecchi and M. R. Capecchi (1973). Altered enzymes in drug resistant variants of mammalian tissue culture cells. *Proc. Natl. Acad. Sci. USA* **70**:3145-3149. PMID: 4522295.
- Capecchi, M. R., N. E. Capecchi, S. H. Hughes and G. M. Wahl (1974). Selective degradation of abnormal proteins in mammalian tissue culture cells. *Proc. Natl. Acad. Sci. USA* **71**:4732-4736. PMID: 4531013.
- Hughes, S. H., G. M. Wahl and M. R. Capecchi (1975). Purification and characterization of mouse hypoxanthine-guanine phosphoribosyl transferase. *J. Biol. Chem.* **250**:120-126. PMID: 237883.
- Wahl, G. M., S. H. Hughes and M. R. Capecchi (1975). Immunological characterization of hypoxanthine-guanine phosphoribosyl transferase mutants of mouse L cells: Evidence for mutations at different loci in the HGPRT gene. *J. Cell Phys.* **85**:307-320. PMID: 47331.
- Capecchi, M. R., S. H. Hughes and G. M. Wahl (1975). Yeast super suppressors are altered tRNAs capable of translating a nonsense codon *in vitro*. *Cell* **6**:269-277. PMID: 802681.
- Capecchi, M. R. and R. E. Webster (1975). Bacteriophage RNA as template for *in vitro* protein synthesis. In, *RNA Phages* (N. D. Zinder, Ed.). Pp. 279-299. Cold Spring Harbor, New York: Cold Spring Harbor Press.
- Capecchi, M. R., R. A. V. Haar, N. E. Capecchi and M. M. Sveda (1977). The isolation of a suppressible nonsense mutant in mammalian cells. *Cell* **12**:371-381. PMID: 912748.
- Capecchi, M. R., R. A. V. Haar, N. E. Capecchi and M. M. Sveda (1977). Molecular approaches to eucaryotic genetic systems. *ICN-UCLA Symposia* **8**:381-398.
- Capecchi, M. R., R. A. V. Haar and M. M. Sveda (1978). Characterization of nonsense mutants in mammalian cells in culture. In *Mutations and tRNA Nonsense Suppressors* (J. E. Celis and J. D. Smith, Eds.). New York: Academic Press.
- Capecchi, M. R. (1980). High efficiency transformation by direct microinjection of DNA into cultured mammalian cells. *Cell* **22**:479-488. PMID: 6256082.
- Folger, K. R., E. A. Wong, G. Wahl and M. R. Capecchi (1982). Patterns of integration of DNA microinjected into cultured mammalian cells: Evidence for homologous

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- recombination between injected plasmid DNA molecules. *Mol. Cell. Biol.* **2**:1372-1387. PMID: 6298598.
- Hudziak, R. M., F. A. Laski, U. L. R. Bhandary, P. A. Sharp and M. R. Capecchi (1982). Establishment of mammalian cell lines containing multiple nonsense mutations and functional suppressor tRNA genes. *Cell* **31**:137-146. PMID: 6760983.
- Luciw, P. A., J. M. Bishop, H. E. Varmus and M. R. Capecchi (1983). Location and function of retroviral and SV40 sequences that enhance biochemical transformation after microinjection of DNA. *Cell* **33**:705-716. PMID: 6307525.
- Young, J. F., M. R. Capecchi, F. A. Laski, U. L. R. Bhandary, P. A. Sharp and P. Palese (1983). Measurement of suppressor transfer RNA activity. *Science* **221**:873-875. PMID: 6308765.
- Folger, K. R., K. R. Thomas and M. R. Capecchi (1984). Analysis of homologous recombination in cultured mammalian cells. *Cold Spring Harbor Symp. Quant. Biol.* **49**:123-138. PMID: 6099232.
- Laski, F. A., R. Belagaje, R. M. Hudziak, M. R. Capecchi, G. P. Norton, P. Palese, U. L. R. Bhandary and P. A. Sharp (1984). Synthesis of an ochre suppressor tRNA gene and expression in mammalian cells. *EMBO J.* **3**:2445-2452. PMID: 6096120.
- Folger, K. R., K. R. Thomas and M. R. Capecchi (1985). Nonreciprocal exchanges of information between DNA duplexes coinjected into mammalian cell nuclei. *Mol. Cell. Biol.* **5**:59-69. PMID: 2984556.
- Folger, K. R., K. R. Thomas and M. R. Capecchi (1985). Efficient correction of mismatched bases in plasmid heteroduplexes injected into cultured mammalian cell nuclei. *Mol. Cell. Biol.* **5**:70-74. PMID: 3982420.
- Frels, W. I., J. A. Bluestone, R. J. Hodes, M. R. Capecchi and D. S. Singer (1985). Expression of a microinjected porcine class I major histocompatibility complex gene in transgenic mice. *Science* **228**:577-580. PMID: 3885396.
- Wong, E. A. and M. R. Capecchi (1985). Effects of cell cycle position on transformation by microinjection. *Somat. Cell Mol. Genet.* **11**:45-51. PMID: 3856330.
- Goddard, J. M., J. J. Weiland and M. R. Capecchi (1986). Isolation and characterization of *Caenorhabditis elegans* DNA sequences homologous to the *V-abl* oncogene. *Proc. Natl. Acad. Sci. USA* **83**:2172-2176. PMID: 3002636.
- Thomas, K. R., K. R. Folger and M. R. Capecchi (1986). High frequency targeting of genes to specific sites in the mammalian genome. *Cell* **44**:419-428. PMID: 3002636.

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- Wong, E. A. and M. R. Capecchi (1986). Analysis of homologous recombination in cultured mammalian cells in a transient expression and a stable transformation assay. *Somat. Cell Mol. Genet.* **12**:63-72. PMID: 3003931.
- Thomas, K. R., and M. R. Capecchi (1986). Introduction of homologous DNA sequences into mammalian cells induces mutations in the cognate gene. *Nature* **324**:34-38. PMID: 3785372.
- Thomas, K. R. and M. R. Capecchi (1986). Targeting of genes to specific sites in the mammalian genome. *Cold Spring Harbor Symp. Quant. Biol.* **51**:1101-1113. PMID: 3472755.
- Wong, E. A. and M. R. Capecchi (1987). Homologous recombination between coinjected DNA sequences peaks in early to mid-S phase. *Mol. Cell. Biol.* **7**:2294-2295. PMID: 3600663.
- Thomas, K. R. and M. R. Capecchi (1987). Site-directed mutagenesis by gene targeting in mouse embryo-derived stem cells. *Cell* **51**:503-512. PMID: 2822260.
- Mansour, S. L., K. R. Thomas and M. R. Capecchi (1988). Disruption of the proto-oncogene *int-2* in mouse embryo-derived stem cells: A general strategy for targeting mutations to nonselectable genes. *Nature* **336**:348-352. PMID: 3194019.
- Capecchi, M. R. (1989). Altering the genome by homologous recombination. *Science* **244**:1288-1292. PMID: 2660260.
- Capecchi, M. R., K. R. Thomas and S. L. Mansour (1989). Creating mice with specific mutations by gene targeting. In *Molecular Genetics of Early Drosophila and Mouse Development* (M. R. Capecchi, Ed.). Pp. 45-52. Cold Spring Harbor, New York: Cold Spring Harbor Press.
- Capecchi, M. R. (1989). The new mouse genetics: altering the genome by gene targeting. *Trends Genet.* **5**:70-76. PMID: 2308628.
- Mansour, S. L., K. R. Thomas, C. Deng and M. R. Capecchi (1990). Introduction of a *lacZ* reporter gene into the mouse *int-2* locus by homologous recombination. *Proc. Natl. Acad. Sci. USA* **87**:7688-7692. PMID: 2120706.
- Thomas, K. R. and M. R. Capecchi (1990). Targeted disruption of the murine *int-1* proto-oncogene resulting in severe abnormalities in midbrain and cerebellar development. *Nature* **346**:847-850. PMID: 2202907.
- Capecchi, M. R. (1990). Tapping the cellular telephone. *Nature* **344**:105. PMID: 2308328.
- Capecchi, M. R. (1990). How efficient can you get? *Nature* **348**:109. PMID: 2234072.

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- Chisaka, O. and M. R. Capecchi (1991). Regionally restricted developmental defects resulting from targeted disruption of the mouse homeobox gene *hox-1.5*. *Nature* **350**:473-479. PMID: 1673020.
- Thomas, K. R., T. A. Musci, P. E. Neumann and M. R. Capecchi (1991). *Swaying* is a mutant allele of the proto-oncogene *Wnt-1*. *Cell* **67**:969-976. PMID: 1835670.
- Chisaka, O., T. S. Musci and M. R. Capecchi (1992). Developmental defects of the ear, cranial nerves and hindbrain resulting from targeted disruption of the mouse homeobox gene *hox-1.6*. *Nature* **355**:516-520. PMID: 1346922.
- Thomas, K. R., C. Deng and M. R. Capecchi (1992). High-fidelity gene targeting in embryonic stem cells by using sequence replacement vectors. *Mol. Cell. Biol.* **12**:2919-2923. PMID: 1620105.
- Deng, C. and M. R. Capecchi (1992). Reexamination of gene targeting frequency as a function of the extent of homology between the targeting vector and the target locus. *Mol. Cell. Biol.* **12**:3365-3371. PMID: 1321331.
- Mansour, S. L., J. M. Goddard and M. R. Capecchi (1993). Mice homozygous for a targeted disruption of the proto-oncogene *int-2* have developmental defects in the tail and inner ear. *Development* **117**:13-28. PMID: 8223243.
- Deng, C., K. R. Thomas and M. R. Capecchi (1993). Location of crossovers during gene targeting with insertion and replacement vectors. *Mol. Cell. Biol.* **13**:2134-2140. PMID: 8455602.
- Capecchi, M. R. (1993). YACs to the rescue. *Nature* **362**:205-206. PMID: 8096325.
- Carpenter, E. M., J. M. Goddard, O. Chisaka, N. R. Manley and M. R. Capecchi (1993). Loss of *Hoxa-1* (*Hox-1.6*) function results in the reorganization of the murine hindbrain. *Development* **118**:1063-1075. PMID: 7903632.
- Condie, B. G. and M. R. Capecchi (1993). Mice homozygous for a targeted disruption of *Hoxd-3* (*Hox-4.1*) exhibit anterior transformations of the first and second cervical vertebrae, the atlas and the axis. *Development* **119**:579-595. CONDI PMID: 7910549.
- Capecchi, M. R. (1994). Targeted gene replacement. *Sci. Am.* **270**:54-61. PMID: 8134827.
- Kostic, D. and M. R. Capecchi (1994). Targeted disruptions of the murine *hoxa-4* and *hoxa-6* genes result in homeotic transformations of components of the vertebral column. *Mech. Dev.* **46**:231-247. PMID: 7918106.
- Davis, A. P. and M. R. Capecchi (1994). Axial homeosis and appendicular skeleton defects in mice with targeted disruption of *hoxd-11*. *Development* **120**:2187-2198. PMID: 7925020.

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- Condie, B. G. and M. R. Capecchi (1994). Mice with targeted disruptions in the paralogous genes *hoxa-3* and *hoxd-3* reveal synergistic interactions. *Nature* **370**:304-307. PMID: 7913519.
- Spyropoulos, D. D. and M. R. Capecchi (1994). Targeted disruption of the *even-skipped* gene, *evx1*, causes early postimplantation lethality of the mouse conceptus. *Genes Dev.* **8**:1949-1961. PMID: 7958869.
- Rancourt, D. E., T. Tsuzuki and M. R. Capecchi (1995). Genetic interaction between *hoxb-5* and *hoxb-6* is revealed by nonallelic noncomplementation. *Genes Dev.* **9**:108-122. PMID: 7828847.
- Capecchi, M. R. (1995). A personal view of gene targeting. In *Accomplishments in Cancer Research 1994*. (J. G. Fortner and J. E. Rhoads, Ed.) Philadelphia: J. B. Lippincott, pp. 67-78.
- Manley, N.R. and M.R. Capecchi (1995). The role of *hoxa-3* in mouse thymus and thyroid development. *Development* **121**:1989-2003. PMID: 7635047.
- Davis, A.P., D.P. Witte, H.M. Hsieh-Li, S.S. Potter and M.R. Capecchi (1995). Absence of radius and ulna in mice lacking *hoxa-11* and *hoxd-11*. *Nature* **375**:791-796. PMID: 7596412.
- Capecchi, M.R. (1995). The molecular genetic analysis of mouse development. In *Seminars in Developmental Biology*. (M.R. Capecchi, Ed.) London: Academic Press **6**:233-237.
- Zeiber, B.G., E. Eichwald, J. Zabner, J.J. Smith, A.P. Puga, P.B. McCray, Jr., M.R. Capecchi, M.J. Welsh, and K.R. Thomas (1995). A mouse model for the  $\Delta$ -F508 allele of cystic fibrosis. *J. Clin. Invest.* **96**:2051-2064. PMID: 7560099.
- Davis, A.P. and M.R. Capecchi (1996). A mutational analysis of the 5' Hox D genes: Dissection of genetic interactions during limb development in the mouse. *Development* **122**:1175-1185. PMID: 8620844.
- Delort, J.P. and M.R. Capecchi (1996). TAXI/UAS: a molecular switch to control expression of genes *in vivo*. *Hum. Gene Ther.* **7**:809-820. PMID: 8860833.
- Boulet, A.M. and M.R. Capecchi (1996). Targeted disruption of *hoxc-4* causes esophageal defects and vertebral transformations. *Dev. Biol.* **177**:232-249. PMID: 8660891.
- Esther, C. R., Jr., T. E. Howard, E. M. Marino, J. M. Goddard, M. R. Capecchi and K. E. Bernstein (1996). Mice lacking angiotensin-converting enzyme have low blood pressure, renal pathology, and reduced male fertility. *Lab. Invest.* **74**:953-965. PMID: 8642790.
- Goddard, J. M., M. Rossel, N. R. Manley and M. R. Capecchi (1996). Mice with targeted disruption of *Hoxb-1* fail to form the motor nucleus of the VIIth nerve. *Development* **122**:3217-3228. PMID: 8898234.

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- Barrow, J. R. and M. R. Capecchi (1996). Targeted disruption of the *hoxb-2* locus in mice interferes with expression of *hoxb-1* and *hoxb-4*. *Development* **122**:3817-3828. PMID: 9012503.
- Esther, C. R., Jr., T. E. Howard, Y. Zhou, M. R. Capecchi, M. B. Marrero and K. E. Bernstein (1996). Lessons from angiotensin-converting enzyme-deficient mice. *Curr. Opin. Nephrol. Hypertens.* **5**:463-467. PMID: 8978990.
- Capecchi, M. R. (1996). Function of homeobox genes in skeletal development. In *Molecular and Developmental Biology of Cartilage*, Vol. 785. (B. de Crombrughe, W. A. Horton, B. R. Olsen, and F. Ramirez, Eds.) *Ann. N. Y. Acad. Sci.* **785**:34-37. PMID: 8702174.
- Chen, F. and M. R. Capecchi (1997). Targeted mutations in *Hoxa-9* and *Hoxb-9* reveal synergistic interactions. *Dev. Biol.* **181**:186-196. PMID: 9013929.
- Humphries, M. M., D. Rancourt, G. J. Farrar, P. Kenna, M. Hazel, R. A. Bush, P. A. Sieving, D. M. Sheils, N. McNally, P. Creighton, A. Erven, A. Boros, K. Gulya, M. R. Capecchi and P. Humphries (1997). Retinopathy induced in mice by targeted disruption of the rhodopsin gene. *Nature Genet.* **15**:216-219. PMID: 9020854.
- Thomas, K. R. and M. R. Capecchi (1997). Recombinant DNA technique and sickle cell anemia research. *Science.* **275**:1404-1405. PMID: 9072801.
- Capecchi, M. R. (1997). The role of Hox genes in hindbrain development. In *Molecular and Cellular Approaches to Neural Development*. (W.M. Cowan, T.M. Jessell and S.L. Zipursky, Eds.) New York: Oxford University Press, pp. 334-355.
- Esther, C. R., Jr., E. M. Marino, T. E. Howard, A. Machaud, P. Corvol, M. R. Capecchi and K. E. Bernstein (1997). The critical role of tissue angiotensin-converting enzyme as revealed by gene targeting in mice. *J. Clin. Invest.* **99**:2375-2385. PMID: 9153279.
- Carpenter, E. M., J. M. Goddard, A. P. Davis, T. P. Nguyen and M. R. Capecchi (1997). Targeted disruption of *Hoxd10* affects mouse hindlimb development. *Development* **124**:4505-4514. PMID: 9409668.
- Capecchi, M. R. (1997). *Hox* genes and mammalian development. In *Cold Spring Harbor Symposia on Quantitative Biology: Pattern Formation during Development*. Vol. LXII. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press, pp. 273-281. PMID: 959861.
- Condie, B. C., G. Bain, D. I. Gottlieb and M. R. Capecchi (1997). Cleft palate in mice with a targeted mutation in the  $\gamma$ -aminobutyric acid-producing enzyme glutamic acid decarboxylase 67. *Proc. Natl. Acad. Sci. USA* **94**:11451-11455. PMID: 9326630.

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- Manley, N. R. and M. R. Capecchi (1997). Hox group 3 paralogous genes act synergistically in the formation of somitic and neural crest-derived structures. *Dev. Biol.* **192**:274-288. PMID: 9441667.
- Wilder, P. J., D. Kelly, K. Brigman, C. L. Peterson, T. Nowling, Q.-S. Gao, R. D. McComb, M. R. Capecchi and A. Rizzino (1997). Inactivation of the FGF-4 gene in embryonic stem cells alters the growth and/or the survival of their early differentiated progeny. *Dev. Biol.* **192**:614-629. PMID: 9441693.
- Capecchi, M. R. (1997). The Making of a Scientist. In *Kyoto Prizes and Inamori Grants 1996*. Kyoto: The Inamori Foundation.
- Hostikka, S. L. and M. R. Capecchi (1998). The mouse *Hoxc11* gene: genomic structure and expression pattern. *Mech. Dev.* **70**:133-145. PMID: 9510030.
- Godwin, A. R. and M. R. Capecchi (1998). *Hoxc13* mutant mice lack external hair. *Genes Dev.* **12**:11-20. PMID: 9420327.
- Manley, N. R. and M. R. Capecchi (1998). *Hox* group 3 paralogs regulate the development and migration of the thymus, thyroid and parathyroid glands. *Dev. Biol.* **195**:1-15. PMID: 9520319.
- Capecchi, M. R. (1998). Gene targeting: an historical perspective. In *Novel Systems for the Study of Human Diseases--From Basic Research to Applications*. pp. 49-54. OECD Proceedings.
- Chen, F., J. Greer and M. R. Capecchi (1998). Analysis of *Hoxa7/Hoxb7* mutants suggests periodicity in the generation of the different sets of vertebrae. *Mech. Dev.* **77**:49-57. PMID: 9784603.
- Godwin, A. R., H. S. Stadler, K. Nakamura and M. R. Capecchi. (1998). Detection of targeted *GFP-Hox* gene fusions during mouse embryogenesis. *Proc. Natl. Acad. Sci. USA* **95**:13042-13047. PMID: 9789037.
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## **Publications**

Competent Porcine Pluripotent Stem Cells. *Stem Cell and Development* (submitted).

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