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2008 MARCH OF DIMES PRIZE IN DEVELOPMENTAL BIOLOGY

BIOGRAPHICAL SKETCH

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Clifford J. Tabin PhD, professor and chairman of the Department of Genetics at Harvard Medical School in Massachusetts, is a renowned researcher and an expert on how hedgehog genes and their protein signals regulate limb and organ growth during fetal and embryonic development. However, his early focus in life, like that of many children, was as much on sports as on science.

Dr. Tabin's father was a nuclear physicist who worked on the Manhattan Project to build the atomic bomb during World War II, and his mother was a clinical psychologist. But the dinner table conversation when Dr. Tabin was growing up usually focused on football, baseball, tennis and the other sports he and his brother, Geoff, were involved in.

Education was top priority in his family, and Dr. Tabin followed in his father's footsteps, attending the University of Chicago as an undergraduate and expecting to launch a career in physics. However, by the time he began his PhD studies at the Massachusetts Institute of Technology, a voluntary moratorium on recombinant DNA

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research had just been lifted, and the molecular biology revolution was beginning. Dr. Tabin turned his focus to this new opportunity.

As a graduate student, Dr. Tabin worked in the laboratory of Dr. Robert Weinberg, a pioneer in the study of oncogenes (cancer genes). As his thesis work, Dr. Tabin uncovered the genetic changes produced when a normal gene becomes an oncogene with the potential to cause a healthy cell to become cancerous.

During his tenure at Harvard Medical School, Dr. Tabin's work has been directed towards understanding how certain genes control the emergence of anatomical form and organization during the embryonic development of vertebrates – and how errors in this process lead to birth defects.

Dr. Tabin also performed the first molecular analysis of how left-right asymmetry is established during embryonic development. Among other things, his work explains why the heart is located on the left and not the right side of the body and why the thumb is different from the little finger. These findings have contributed critically to our understanding of congenital limb malformations and asymmetry-related heart defects.

Dr. Tabin works closely with colleagues at Harvard, as well as with researchers at other institutions, often exchanging information on a daily basis. His lab, in collaboration with two others, was one of several teams that first cloned the three vertebrate hedgehog genes. His work with the gene we now call Sonic hedgehog yielded important insights into how structures such as the limbs and other organs are formed.

He is also a leader in uncovering how changes in the regulation of genes during embryonic growth is altered through the course of animal evolution to produce the variety of forms seen in the natural world.

Dr. Tabin is the chairman of an international advisory board to the Patan University of Health Sciences, a new medical school that he and a group of Nepalese physicians established in Kathmandu, to train physicians to serve in rural districts.

Dr. Tabin and his team developed the curriculum for the medical school, and he has been actively recruiting volunteers from Harvard to teach courses until the Nepalese faculty develops the expertise to take them over.

Dr. Tabin is an elected member of the National Academy of Sciences and the American Academy of Arts and Sciences, and he was the recipient of the National Academy of Sciences Award in Molecular Biology in 1999.

Dr. Tabin is married to Kefira, a former competitive ice climber and a Winter X games silver medalist in speed ice climbing. The Tabins built a multi-story indoor artificial ice and rock climbing wall inside their house where she can train. (Dr. Tabin sticks to baseball and has yet to try climbing the wall.) The couple have two young children, Julius and Janice.

From his home in Belmont, Massachusetts, Dr. Tabin remains in close contact with his brother, himself a former world-class mountaineer and now an ophthalmologist who helps deliver eye care in the Himalayas; and with his parents, who continue to live in Illinois and support the Chicago Bears football team. In fact, Dr. Tabin still calls his father after each Bears game.

The March of Dimes Prize in Developmental Biology has been awarded annually since 1996 to investigators whose research has profoundly advanced the science that underlies the understanding of birth defects. The March of Dimes Foundation created the Prize as a tribute to Dr. Jonas Salk, who received Foundation support for his work to create a polio vaccine.

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