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## IN MEMORIAM

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Volker Schmid (1939 - 2008)



in Zurich for another three years as an assistant, continuing his research on the gametogenesis and regeneration of Hydrozoa, and teaching medical students. For his postdoctoral training he wanted to familiarize himself with the modern techniques of molecular biology. Therefore in 1975 he joined Arthur Whitely at the University of Washington in Seattle. Most of the time he worked at the marine station of Friday Harbor on San Juan Island where, before returning to Zurich, Volker and Käthi bought a cottage right on the seashore where, since then, they returned almost every year to spend their summer vacations.

In 1978, Volker Schmid got his habilitation as Privatdozent in Zurich, and in 1981, he was nominated Extraordinarius at the Zoological Institute of the University of Basel, where he was later promoted to Ordinarius (full professor). A breakthrough in his scientific career came from his work with a hydrozoan jellyfish, *Podocoryne carnea*. Schmid demonstrated that the mononucleated striated muscle cells of these tiny medusae provide a unique model system in the animal kingdom to study cell transdifferentiation. In the animal and under defined culture conditions these cells seem to be terminally committed and they do not divide anymore. After destabilisation, however, the cells start to transdifferentiate into smooth muscle cells and resume cell division. In an asymmetric stem cell-like manner, smooth muscle cells divide into a further dividing smooth muscle cell and a non-dividing, terminally differentiated nerve cell. Eventually, new organs are formed as if the muscle cells try to regenerate a whole animal. When he shot a picture containing both cross-striated muscle fibres and a nematocyst in the same cell, even his most vivid critics became convinced that cross-striated muscle cells can transdifferentiate into other cell types. His findings were published in the journal "Cell". The transdifferentiation studies made by Volker Schmid were particularly appreciated in Japan, where he was repeatedly invited to give seminars. Recently, genetically reprogrammed, induced pluripotent stem cells have become a popular topic. Volker Schmid was actually among the few scientists who identified and documented a striking case of cell plasticity, i.e. the reprogramming of differentiated somatic cells to pluripotent progenitors. In the following years, with several members of his laboratory he carefully investigated the role of structural and regulatory genes in the complex jellyfish life cycle and in transdifferentiation, providing milestone contributions in the cnidarian evo-devo literature.

Working on the striated muscle layer of hydrozoans had another equally important outcome. Volker Schmid offered rigorous, undisputed arguments towards the occurrence of mesodermal anatomies in all cnidarians classes and the conservation of a common regulatory gene cascade for the myogenic lineage differentiation between cnidarians and Bilateria, pointing to the Urtriploblast as a common triploblast ancestor. More recently, he discovered some non-radially organized hydrozoan larvae, with an anterior concentration of sensory and ganglionic nerve elements, suggesting that a fundamental genetic toolkit for the establishment of bilateral and polarized

Volker Schmid died peacefully on April 1, 2008, after a long severe illness. We have lost an outstanding developmental biologist who made some most important contributions to the field of cell transdifferentiation and the evolutionary developmental biology of cnidarians.

Volker Schmid was born on September 23, 1939 at Schweidnitz (Poland), at the beginning of World War II. His father was a German engineer, his mother was Swiss. In the winter of 1945, Volker's family fled to Germany and later to Switzerland. He was a gifted student and entered the University of Zurich to study his favorite topic, zoology.

At that time, the Zoological Institute was headed by Ernst Hadorn, who had an excellent reputation both as an experimental developmental biologist and a teacher. Together with Jean Brachet and Paul Weiss, Hadorn had founded the new journal of "Developmental Biology" which combined embryology with biochemistry and cell biology into a new discipline called developmental biology. Therefore, Volker Schmid was exposed to a profound and broad education in biology. Hadorn also taught a marine biology course in Banyuls (Southern France), which elicited Volker Schmid's interest in the ontogeny of marine organisms. He did his Ph.D. thesis under the guidance of Pierre Tardent, who had returned to Switzerland after many years of work at the Stazione Zoologica "Anton Dohrn" in Naples. Pierre Tardent introduced Volker to jellyfish development, which remained Volker's favourite research topic for the rest of his life.

In 1962, Volker married Käthi Mattenberger, a student of natural sciences in Zurich, and together they had four children: Gisele (who died on the second day of her life), Lonja, Mark and Jan. After getting his Ph.D., Volker Schmid stayed on

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anatomies was already present before the Cnidaria-Bilateria divergence. However, he was not given enough time to complete this work, and it will be up to his students and colleagues to settle these problems.

After his official retirement in 2005, he did not interrupt his scientific and educational activities. Indeed, Volker was also an enthusiastic teacher. For many years, he regularly organized and chaired courses on the experimental developmental biology of marine invertebrates in field stations, especially at the Station Biologique in Roscoff, attended by students from all Europe. Roscoff was one of the favorite research stations of Volker Schmid and he left there many friends to whom he conveyed passion and joy for research. Since 2008, the Roscoff course appears under his name, and will continue in the future years as *The Volker Schmid Training Course*.

With Volker Schmid's passing away, we have lost a great scientist and zoologist, a warm and friendly person, loving his experimental work and Nature in all forms. Volker was not just a dedicated scientist, but also a naturalist, a tenacious mushroom hunter, and a renowned fisherman, particularly for salmon. Many times he created a serious problem for the customs officers at Friday Harbor, when he arrived with some large empty suitcases. He needed those to take back some 50 pounds of frozen salmon when leaving for Switzerland! We have had the privilege to meet him and share with him work and good times. We shall keep our best memories of him, not only as an excellent and acute scientist, but also as a man of fine and exquisite personality.

Walter Gehring, Brigitte Galliot and Stefano Piraino  
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