

Oedipus Tyrannous: A lesson in genetics

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Oedipus the King or Oedipus Tyrannous is a famous play of Sophocles, one of three ancient Greek tragedians whose plays have survived. According to the narrative of this play by Sophocles (c. 497/6 – winter 406/5 BC), Oedipus was the son of Iokasti and Laios, the King of Thebes, in ancient Greece. When Oedipus was born, Laios received an oracle of Apollo at Delphi according to which Oedipus was going to kill his father Laios and then marry his mother Iokasti. To avoid this oracle coming to truth, the royal couple gave Oedipus away immediately after birth, with the purpose to having him die out in the wild. Instead, the infant was collected by a shepherd and eventually was adopted and raised by king Polybus and queen Merope of Corinth, thinking they were his biological parents. When he grew up, after an accident, Oedipus killed his father Laios during a fight without knowing and after responding to the aenigma of the Sphinx outside Thebes, he married Iokasti, his mother, also without knowing the truth. Oedipus and Iokasti had four healthy children, always according to the play by Sophocles, Polynices, Eteocles, Antigoni and Ismini. The important question is: what is the probability of two persons who are genetically related by first degree (consanguineous marriage), to have four children and all be healthy? To answer this question we need to have information about the human genome and its polymorphic nature, and of the frequency of deleterious DNA variants. During this lecture we will calculate together the likelihood for this to happen and prove that Sophocles did not know of genetics when he wrote this play.



Brief CV

Constantinos Deltas studied Pharmacy at the National Kapodistrian University of Athens. He received his PhD in Biochemistry at Rutgers University, the State University of New Jersey, USA, for research he developed on inherited disorders of connective tissue. He worked as Instructor in Medicine at the Jefferson Institute of Molecular Medicine, Thomas Jefferson University, Philadelphia, PA, USA. Also, he worked at the Duke University Medical School in North Carolina, USA, in the field of neurogenetics. In 1991 he was invited to join the Cyprus Institute of Neurology and Genetics, in Nicosia, Cyprus where he developed his research activities.

He organized and directed the Department of Molecular Genetics, with activities in the investigation, molecular diagnosis and prevention of several inherited disorders. In 2002 he was the first elected Professor of Genetics at the newly created Department of Biological Sciences of the University of Cyprus, where he had a major role in the organization and preparation of the undergraduate and postgraduate programs of study and the preparation of the laboratories research infrastructure. He is Director of the Molecular Medicine Research Center and he teaches molecular and medical genetics to biology and medical students. For a number of years he also taught as an invited speaker at the Graduate Program of the University of Crete Medical School on the molecular basis of disease in humans.

During the academic year of 2017 Prof. Deltas taught at the College of Medicine of Qatar University as Professor of Genetics, where he also started a new research project on inherited hematuria.

In 2008, Prof. Deltas was elected “Eminent Scientist 2008” by the International Research Promotion Foundation, which honored his innovative research on “Nephrology and Human Genetics” and awarded him with its prestigious Millennium Golden International Award for Europe. Also, he was awarded with the “Cyprus Research Award-Distinguished Researcher 2014” upon nomination by the Cyprus Research Promotion Foundation, based on long standing research experience in Cyprus and demonstration of outstanding achievements with local and international impact. He has more than 140 peer-reviewed publications and more than 30 contributions as book chapters, while he also published a single-author book on the genetics of Cypriots.

<http://www.ucy.ac.cy/mmrc/documents/CVs/DELTAS.Full.CV.pdf>