Beadle and Ephrussi’s Technique to Transplant Optic Discs between Fruit Fly Larvae [1]

By: Pribadi, Amy Keywords: Fruit flies [2]
In 1935, George Beadle and Boris Ephrussi developed a technique to transplant optic discs between fruit fly larvae. They developed it while at the California Institute of Technology in Pasadena, California. Optic discs are tissues from which the adult eyes develop. Beadle and Ephrussi used their technique to study the development of the eye and eye pigment. (1) The experimenter dissects a donor larva, which is in the third instar stage of development, and removes the optic disc (colored red) with a micropipette. Because the antenna disc is attached to the optic disc, they are often removed and transplanted together. (2) The experimenter then implants the optic disc into a host larva, in the part of the host that will develop into an adult abdomen. As the host larva matures to adulthood, the implanted optic disc develops into an eye inside the body cavity of the adult. (3) The adult host has an eye within its body, which Beadle and Ephrussi found by dissecting the adult hosts. If the antenna disc was also transplanted, sometimes the resulting eye developed with an antenna attached.

Subject
Fruit-flies Imaginal disks Beadle, George Wells, 1903-1989 Ephrussi, Boris, 1901-1979 Genetics California Institute of Technology Development Metamorphosis, Biological Larva Imaginal Discs growth

Topic
Technologies Experiments Organisms

Publisher
Arizona State University. School of Life Sciences. Center for Biology and Society. Embryo Project Encyclopedia.

Rights
Copyright Arizona Board of Regents Licensed as Creative Commons Attribution-NonCommercial-Share Alike 3.0 Unported (CC BY-NC-SA 3.0) http://creativecommons.org/licenses/by-nc-sa/3.0/

Format
Graphics

Last Modified
Wednesday, July 4, 2018 - 04:40

DC Date
2016-10-11

DC Date Accessioned
Tuesday, October 11, 2016 - 23:47

DC Date Available
Tuesday, October 11, 2016 - 23:47

DC Date Created
2016-10-11

DC Date Created Standard
Tuesday, October 11, 2016 - 07:00

dspace_image
https://hpsrepository.asu.edu/bitstream/handle/10776/11357/OLimageBETechAP.jpg

- Contact Us

© 2019 Arizona Board of Regents

- The Embryo Project at Arizona State University, 1711 South Rural Road, Tempe Arizona 85287, United States

Source URL: https://embryo.asu.edu/pages/beadle-and-ephrussis-technique-transplant-optic-discs-between-fruit-fly-larvae

Links