



**Chandra X-ray  
Observatory Center**

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**Cygnus X-1:** A stellar-mass black hole in orbit with a companion star located about 6,000 light years from Earth.

(Credit: Optical: DSS; Illustration: NASA/CXC/M.Weiss)

**Caption:** On the left, an optical image from the Digitized Sky Survey shows Cygnus X-1, outlined in a red box. Cygnus X-1 is located near large active regions of star formation in the Milky Way, as seen in this image that spans some 700 light years across. An artist's illustration on the right depicts what astronomers think is happening within the Cygnus X-1 system. Cygnus X-1 is a so-called stellar-mass black hole, a class of black holes that comes from the collapse of a massive star. New studies with data from Chandra and several other telescopes have determined the black hole's spin, mass, and distance with unprecedented accuracy.

**Scale:** Wide field optical image is 4x5 degrees (560x700 light years)

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*