BSC has a dual role, being both a research infrastructure and a research centre. The centre's performance in both areas is reflected by various awards and by its participation in internationally prestigious projects.

In 2011 BSC was one of the first eight research centres in Spain to receive the coveted Severo Ochoa Award for research excellence. This four-year recognition, along with a grant of four million Euros was awarded again to the centre for the 2016-2019 period.

As a research infrastructure, BSC is one of only six hosting partners in the PRACE distributed European supercomputing infrastructure.

The centre also hosts seven ICREA professors and a number of its researchers hold ERC awards.