CDC27is an essential member of the anaphase-promoting complex, an E3 ubiquitin ligase in the ubiquitin-mediated proteolysis pathway. This protein contains tetratrico peptide repeats, a protein-protein interaction motif. The APC ubiquitin ligase helps regulate the metaphase/anaphase transition and exit from mitosis/G1 entry through ubiquitination of various substrates. These include mitotic cyclins, the sister chromatid separation inhibitor Pds1p, the Kip1p and Cin8p motor proteins, Cdc5p, and the spindle disassembly factor, Ase1p. Cdc27p has been shown to bind to two other essential APC subunits, Cdc16p and Cdc23p. A temperature-sensitive mutant of CDC27 arrests as large-budded cells with the nucleus at the neck and is defective in the ubiquitination of Clb2p at non-permissive temperature. The human homologue, CDC27Hs, has been localized to the centrosomes, the mitotic spindle, chromosome arms, and kinetochores. Injection of antibodies raised against CDC27Hs was sufficient to arrest HeLa cells in mitosis, consistent with the essential role for the APC in the metaphase-to-anaphase transition of mammalian cells. SGD thanks Patricia Melloy for writing this gene summary.