

# [The growth and development process (synek et al.](https://assignbuster.com/the-growth-and-development-process-synek-et-al/)

The mutation of this complex impairstethering and fusion of the vesicles that results in accumulation of vesiclesinside cell. (Novick et al. 1980; Heider and Munson, 2012).

During cell division, cell plate formation iscarried out by the accumulation of the vesicles at the site of cytokinesis (Seguí-Simarro et al. 2004) and their fusion by the exocyst complex (Žárskýet al. 2013). Mutation of exo 70A1 shows some defects in cell plate formation (Fendrychet al. 2010), inability in root growth, loss of apical dominance, impairedflower development and smaller organs which proves that they are important ingrowth and development process (Synek et al.

2006). There are different isoforms of the exocystsubunits, which regulate exocytosis related to biotic (Pe? enková et al. 2011) and abiotic stress (Lin et al. 2013; Žárský et al.

2013) and other functions such as membrane recycling, autophagy related vesicular transport (Žárský et al. 2013). Sec3 are theprimary subunit to connect with the target membrane (Finger et al. 1998), theirmutants in yeast resulted accumulation of the secretory vesicle in cytoplasm asthey were unable to dock with the membrane (Finger and Novick, 1997). Sec 3mutants are reported with root hair growth defects that leads to various growthdefects in plants (Wen et al. 2005).  Mutationof Sec 8 shows defective pollen germination and tube growth (Cole et al.

2005). The subunit exo84 plays key role in formation of exocyst complex and targeting(Zhang et al. 2005). Study of Exo 84 mutation in yeast indicate their role inpost Golgi secretion process (Zhang et al. 2005). Exo 84 homolog exo84bmutation resulted vesicles accumulation in cytoplasm, cytokinesis defects, irregularphenotype with retarded growth and sterility (Fendrych et al. 2010).  The accumulated vesicles in exo84 mutantscontain compounds such as pectin and xyloglucan (Fendrych et al.

2010). Othersubunits such as SEC6, SEC8, SEC15b and EXO70A1 are also detected in variousstages of cell plate formation (Fendrych et al. 2010).

In plants mutation ofSec5, Sec6, Sec8, Sec15a resulted less pollen germination with reduced growth(Hala et al. 2008). During cytokinesis secretory vesicles are directed to thecell plate formation matrix where exocyst complex assist tethering and fusion (Fredrychet al. 2010). After fusion vesicles are elongated projecting dumbbell