“Platelet granules: insights into these specialized organelles”

The roles played by platelets in blood coagulation, development, organ regeneration, inflammation, infection and cancer are intimately linked to their ability to transport and secrete a wide range of proteins and other molecules. This cargo is contained in three types of secretory organelles: lysosomes and α and dense (δ) granules, which release their contents upon platelet activation. Studies of congenital platelet disorders have made major contributions to several aspects of platelet biology including granule formation and function, where much has been learned from investigating patients with granule deficiencies/defects. Prominent among δ granule defects are the Hermansky-Pudlak syndromes (for which mouse models exist), where several genes and products linked to the regulation of vesicle trafficking have been implicated. Similar studies have recently led to the identification of several genes involved in α-granule formation, providing new insights into their development in megakaryocytes and platelets.