RhoA

RhoA (Ras homolog family member A) is a small GTPase that regulates cytoskeletal dynamics, cell adhesion, and cell motility.

The Ras homolog gene family, member A (RhoA), is a small GTPase protein in the Rho family.

It is a key intracellular switch that mediates the effects of these extracellular regrowth inhibitors.

While the effects of RhoA activity are not well known, they are primarily associated with cytoskeleton regulation, especially the formation of actin stress fibers and actomyosin contractility.

In humans, it is encoded by the gene RHOA.

It acts upon several effectors. Among them, ROCK1 (Rho-associated, coiled-coil containing protein kinase 1) and DIAPH1 (Diaphanous Homologue 1, a.k.a hDia1, homologue to mDia1 in mouse, diaphanous in Drosophila) are the best described. RhoA, and the other Rho GTPases, are part of a larger family of related proteins known as the Ras superfamily, a family of proteins involved in the regulation and timing of cell division. RhoA is one of the oldest Rho GTPases, with homologues present in the genomes since 1.5 billions years. As a consequence, RhoA is somehow involved in many cellular processes which emerged throughout evolution. RhoA specifically is regarded as a prominent regulatory factor in other functions such as the regulation of cytoskeletal dynamics, transcription, cell cycle progression and cell transformation.

RhoA/ROCK Pathway