Smads (or SMADs) comprise a family of structurally similar proteins that are the main signal transducers for receptors of the transforming growth factor beta (TGF-B) superfamily, which are critically important for regulating cell development and growth. The abbreviation refers to the homologies to the Caenorhabditis elegans SMA (“small” worm phenotype) and Drosophila MAD (“Mothers Against Decapentaplegic”) family of genes.

There are three distinct sub-types of Smads: receptor-regulated Smads (R-Smads), common partner Smads (Co-Smads), and inhibitory Smads (I-Smads). The eight members of the Smad family are divided among these three groups. Trimers of two receptor-regulated SMADs and one co-SMAD act as transcription factors that regulate the expression of certain genes.