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**Why Differential Gene Expression is Useful:**

Differential Gene Expression Analysis (DGEA) is a vital tool in genomics that identifies changes in gene activity between different biological conditions, such as healthy versus diseased states. By highlighting which genes are upregulated or downregulated, DGEA uncovers the molecular mechanisms behind diseases, treatments, and developmental processes. This makes it especially valuable in biomedical research, where it aids in discovering biomarkers, understanding disease pathways, and identifying potential drug targets.

Beyond research, DGEA plays a key role in personalized medicine by enabling tailored treatments based on individual gene expression profiles. It also supports functional genomics by linking gene expression changes to biological functions and pathways. With the rise of RNA-Seq and microarray technology, DGEA has become more accurate and comprehensive, helping scientists explore gene networks and physiological responses with greater precision.