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Industry Consultancy Services

Research Expertise for Consultancy:

- ✓ Molecular diagnosis of genetic diseases associated with nutrient transport and metabolism using high-throughput DNA sequencing technologies
- ✓ Cloning, expression and functional characterization of genes from prokaryotic and eukaryotic organisms in suitable expression systems including *E. coli*, *Pichia pastoris* and mammalian cell lines.
- ✓ Bioremediation of xenobiotics and toxicants from polluted soils and waste water using microbial nanocomposites.
- ✓ WormScan: a technique for high-throughput phenotypic analysis of *Caenorhabditis elegans* for toxicity testing at whole animal levels
- ✓ Bioprocess development for the production of bioplastics using genetically engineered bacteria from renewable sources.

Contribution in Process/Product Development and Technology Transfer:

- Developed microbial nanocomposites of graphene oxide for the removal of contaminated xenobiotics by simultaneous adsorption and biodegradation process
- Employed whole genome sequencing technology to identify rare variants of genes causing diseases among Indian ethnicity.
- Developed technology and optimized the process for the production of biopolymer, muconic acid using a genetically engineered *E. coli*.
- Oxidative stress response, epigenetic and behavioral alterations were studied using *Caenorhabditis elegans* by exposing to organophosphorus pesticide, quinalphos

Consultancy services can be given for:

- Diagnosis of genetic diseases using DNA sequencing strategies and functional analysis of clinical mutations by overexpression and gene function assays.
- Synthesis and production of graphene oxide and iron oxide nanocomposites containing microbes for the removal of heavy metals and toxicants from contaminated environments *ex situ* and *in situ*.
- Construction of genetically engineered bacteria, yeast and mammalian cell lines by expressing genes with desired function from other biological sources.
- High-throughput toxicity testing assays and biological assays *in vivo* (cytotoxic, anti-inflammatory, anti-cancer and anti-diabetic activities) using *Caenorhabditis elegans* at whole animal levels