The extract of green tea leaves contains a variety of compounds with many biological activities. Originally isolated and studied as antioxidants, these compounds have since displayed additional anticancer, antiviral, and anti-inflammatory activities.

The primary active ingredients in green tea extracts are catechins such as Epigallocatechin Gallate (EGCG, E6234), (-)-Epigallocatechin (EGC, E6233), (-)-Epicatechin Gallate (ECG, E6232), and (-)-Epicatechin (E6231). These polyphenols exhibit excellent chemopreventive and chemotherapeutic potential, suppressing cell growth in several different in vitro models of cancer by altering MAPK signaling, CDK expression, topoisomerase I activity, and NF-κB activation. Green tea catechin EGCG suppresses activation of EGFR, IGF-1R, and VEGFR2, inducing apoptosis and inhibiting proliferation of colorectal cancer cells and hepatocellular carcinoma cells.

Green tea catechins also display other biological activities. Epicatechin inhibits replication of hepatitis C virus and downregulates expression of COX-2, iNOS, TNF-α, and IL-1β in vitro. In erythrocytes, these compounds prevent t-BHP-induced increases in malondialdehyde and decreases in glutathione.

Additional components of green tea extract include flavonoids such as Quercetin (Q8016), Myricetin (M9367), and L-Theanine (T2816). In animal models of subarachnoid hemorrhage, quercetin ameliorates behavioral deficits by enhancing activity of superoxide dismutase and glutathione peroxidase and decreases levels of malondialdehyde. Myricetin induces ROS-dependent apoptosis in leukemia cells. In spontaneously hypertensive animal models, administration of L-theanine significantly decreases blood pressure.

LKT Laboratories carries additional catechins and flavonoids as well as mixtures of the above compounds, such as Green Tea Polyphenols (G6817) and a high purity Catechin Mixture (99%, C0278).

References: