Genistein from *Glycine max* (soybean)

**Product Number**  G6776  
**Storage Temperature**  -20 °C

**Product Description**
Molecular Formula: $\text{C}_{15}\text{H}_{10}\text{O}_{5}$  
Molecular Weight: 270.2  
CAS Number: 446-72-0  
Synonyms: 5,7-Dihydroxy-3-(4-hydroxyphenyl)-4H-1-benzopyran-4-one, 4′,5,7-Trihydroxyisoflavone

Genistein is reported to be a specific inhibitor of tyrosine-specific protein kinases, such as, the EGF receptor kinase, pp60 v-src kinase from Rous sarcoma virus, and pp110 kinase from Gardner-Arnstein feline sarcoma virus. Genistein did not inhibit the activity of serine and threonine-specific kinases such as cAMP-dependent protein kinase, protein kinase C, and phosphorylase kinase.\(^1\)

Genistein is a potent inhibitor of the mammalian facilitative hexose transporter GLUT1. In human HL-60 cells, which express GLUT1, inhibition of transport of dehydroascorbic acid, deoxyglucose, and methylglucose in a dose-dependent manner was observed. Genistein also inhibits the uptake of deoxyglucose in human erythrocytes. It did not change the uptake of leucine by HL-60 cells, which indicated that the inhibitory effect is specific for glucose transporters. The inhibitory effect of genistein was competitive with a $K_i$ of approximately 12 µM for the inhibition of the transport of both methylglucose and deoxyglucose.\(^2\)

Genistein has also been shown to inhibit the contraction of several types of smooth muscle. It may thus be a regulatory mechanism for smooth muscle contraction.\(^3\) Genistein partially inhibited the Na$^+$-dependent Ca$^{2+}$ uptake in primary rat cortical neuron culture, suggesting that the exchanger may be modulated by tyrosine phosphorylation. Cells were incubated with 100 µM genistein (in 1% DMSO) for one hour before the assay of Na$^+$/Ca$^{2+}$ exchange activity.\(^4\)

Several references have been publish describing the isolation, purification, and analysis of genistein.\(^5-8\)

**Precautions and Disclaimer**
For Laboratory Use Only. Not for drug, household or other uses.

**Preparation Instructions**
Genistein is soluble in chlorform:methanol (1:1[v:v], 10 mg/ml), yielding a clear, faint to light yellow solution. Stock solutions of genistein in DMSO (up to a concentration of 100 mM) have been prepared.\(^9\) Genistein is practically insoluble in cold water; slightly soluble in hot water, hot ethanol, and hot methanol and soluble in hot 80% ethanol, hot 80% methanol, hot acetone, and pyridine.\(^10\)

**Storage/Stability**
Genistein has been dissolved in DMSO and frozen in aliquots until ready for use.\(^3\)

**References**
