INHIBITION OF AKT/MTOR SIGNALING BY NATURAL PRODUCTS

Aims & Scope:
Akt/mammalian target of rapamycin (mTOR) signaling pathway regulates many cellular events, such as cell growth, proliferation, differentiation, survival/autophagy, motility, angiogenesis and lymphangiogenesis. Deregulation of Akt/mTOR signaling occurs frequently in types of cancer, and is correlated to poor prognosis. Therefore, targeting Akt/mTOR pathway has become a new and promising strategy to combat cancer. While some mTOR inhibitors, such as CCI-779 (Temsirolimus) and RAD001 (Everolimus), have been approved for treatment of advanced renal cancer, other rapamycin analogs (termed rapalogs) and newly synthesized ATP-competitive Akt/mTOR inhibitors are still in clinical trials for treatment of a variety of cancers. Recent studies have revealed that many natural products (or nutraceuticals) isolated from plants (e.g. fruits, vegetables, spices, nuts, legumes, herbs, etc.) also inhibit Akt/mTOR pathway, and exhibit potent anticancer activities. As most of the natural products occur in our diet every day, and are very safe, the results suggest that those natural products may be explored for cancer prevention and treatment. This special issue will focus on caffeine, epigallocatechin gallate (EGCG), curcumin, resveratrol, genistein, 3,3’-diindolylmethane, celandrol, butein, quercetin, apigenin, capsaicin, deguelin, and tocotrienol, and summarize specific aspects of these natural products, including their origins, physical and chemical properties, structures, and medicinal uses. In addition, we will discuss recent advances on their anticancer mechanisms, particularly related to inhibition of Akt/mTOR signaling pathway.

Subtopics:
- Epigallocatechin gallate (EGCG) inhibition of PI3K/mTOR signaling
- Resveratrol inhibition of mTOR signaling
- Curcumin inhibition of Akt/mTOR signaling
- Caffeine inhibition of PI3K/Akt/mTOR/p70S6K pathway
- Genistein inhibition of PI3K/Akt signaling
- Celandrol inhibition of Akt/mTOR pathway
- Apigenin inhibition of mTOR signaling
- Quercetin inhibition of mTOR signaling
- Butein inhibition of PI3K/Akt signaling
- Capsaicin inhibition of PI3K/Akt signaling
- Deguelin inhibition of Akt/mTOR signaling
- Tocotrienol inhibition of Akt signaling

Schedule:
Manuscript submission deadline: July 2012
Peer Review Due: August 2012
Revision Due: October 2012
Notification of acceptance by the Guest Editor: November 2012
Final manuscripts due: November 2012