



FOUNDATIONS OF INTEGRATIVE ONCOLOGY

Module 4 Toolbox: Therapeutic Interventions & Immune Modulation

Lesson 3 Materia Medica: Targeted Phytochemicals

Learning Objectives – Understand and describe:

- Pleomorphic multi-functional nature of phytochemicals and their epigenetic effects
- Functions, applications and dosing of eight targeted phytochemicals
- Five ways in which inflammation promotes carcinogenesis
- Five phytochemicals that inhibit NF-kB
- Six phytochemicals that inhibit inflammatory cytokines (TNF α , COX1, COX2, LOX, CRP, IL-6)
- Four biomarkers for monitoring inflammation
- Eight inflammatory syndromes linked to increased cancer risk
- Six chronic infections linked to increased cancer risk

Targeted Phytochemicals

- **Curcumin** can selectively modulate multiple cell signaling pathways linked to inflammation and to survival, growth, invasion, angiogenesis, and metastasis of cancer cells.
- **Resveratrol** has a variety of anti-inflammatory effects
- **EGCG** promotes normal antioxidant function, protects DNA, and promotes apoptosis
- **Quercetin** inhibits tumors through a variety of effects and inhibit chemo resistance
- **Sulphoraphanes** support DNA protection, detoxification, antioxidant defense, and apoptosis
- **Baicalein** promotes apoptosis and cell cycle arrest, and acts as a chemosensitizer and antioxidant
- **Wogonin** promotes apoptosis, is a potent antioxidant and free radical scavenger
- **Berberine** is anti-proliferative, pro-apoptotic, anti-inflammatory and improves multi-drug resistance

Inflammation promotes tumor growth, proliferation, metastasis, angiogenesis, and immune suppression

Inflammatory Syndromes Linked to Increased Cancer Risk

IBS Gerd, Cervicitis, Cholecystitis, Hepatitis, Pancreatitis, Obesity, Endometriosis, Metabolic Syndrome

Chronic Infections Linked to Increased Cancer Risk

HPV, Hepatitis B and C, Epstein Barr Virus, Heliobacter Pylori, Schistosoma haematobium, Liver Flukes

Markers of Inflammation: CRP, Interleukin 6, CA125, Ceruloplasmin

NF-kB Inhibitors

- EGCG (green tea catechins)
- Luteolin (artchoke leaf extract)
- Parthenolide (feverfew)
- Quercetin (red apples, red onions)
- Resveratrol (grapes)
- Herbs/Spices: Turmeric (curcumin), basil, cinnamon, cardamom, clove, ginger, garlic, nutmeg, coriander, cumin, mint, parsley, rosemary

Inflammation Control

- Curcumin
- Boswellia
- Omega 3 Fatty Acids
- Resveratrol
- Sulphoraphanes
- Zingiber (gingerols)



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