Resveratrol: A molecular calorie restriction mimic

Possibly one of the biggest breakthroughs in biology was recently announced with the discovery that calorie restriction activates the Sirtuin 1 DNA-repair "survival" gene, a genetic mechanism that can be mimicked with a red wine molecule called resveratrol. Instead of humans having to deprive themselves of food to live longer and healthier they could just take a red wine pill. [Nature 2003 Sep 11; 425(6954):191-6]

Doctors Signorelli and Ghidoni single out resveratrol, a red wine molecule, for its unique ability to favorably control hundreds of genes at one time. [Journal Nutritional Biochemistry 16: 449-66, 2005]

Dr. John Pezzutto of the University of Illinois, describes resveratrol’s overwhelming effect upon the genome as "a whiff that induces a biologically specific tsunami." [Cancer Biology Therapy 2004 Sep; 3(9):889-90]

With such a broad effect upon the human genome, imagine how many drugs resveratrol might replace? The list is dazzling. In doses achievable with dietary supplements, resveratrol is a potent anti-inflammatory (COX-inhibitor) agent, blood thinner, cholesterol controller, antioxidant, mineral chelator, liver detoxifier, brain plaque cleanser, blood sugar normalizer, bone builder, cell adhesion inhibitor, anti-depressant, as well as an anti-bacterial, anti-viral and anti-fungal agent. The pharmaceutical model of a drug for every disease is abolished. One pill for all.

Furthermore, resveratrol pre-conditions the brain and heart against damage caused by strokes or heart attacks. [Cell Cycle. 2008 Feb 15; 7(8)]

Resveratrol inhibits weight gain by two mechanisms – inhibition of fatty acid synthase, an enzyme needed to convert sugars into fat, and by reduction of insulin levels which reduce hunger. Current Medicinal Chemistry 2006; 13(8):967-77; Life Science. 2008 Feb 13; 82(7-8):430-5]

In a remarkable experiment conducted at the Cardiovascular Research Center at the University of Connecticut, resveratrol overcame an animal model of heart failure where the first blood vessel outside the heart (the aorta) was restricted with a band, inducing the heart to pump harder against intentional resistance. This usually results in thickening of the ventricle (chamber) walls of the heart and reduced expulsion of blood (ejection fraction). However, these effects were abolished in resveratrol-treated animals. [Current Opinion Investigational Drugs. 2008 Apr; 9(4):371-8]

Because resveratrol also exists as an unpatentable dietary supplement, it stands directly in the way of plans by Big Pharma to control the emerging field of genomic medicine. By itself, resveratrol could completely "harmonize" modern pharmacology – a universal pill for all disease. … But big Pharma may be losing control of resveratrol.

http://www.lewrockwell.com/sardi/sardi83.html