

### 研究烏龍茶濃縮液和茶多酚對前列腺癌細胞的影響

Oolong tea extract inhibits the growth and proliferation of human cancer cells

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#### 作品簡介 Project Introduction

胞內部的機制，誘發很多疾病。在經過醫學專家的研究後，得出自由基的敵人其實是抗氧化劑。而在茶葉中有一種成份比重約為25%的茶多酚。從茶葉中提取出來的茶多酚極易被氧化成為醌類而提供氫原子，由於茶多酚擁有這麼強的抗氧化能力，對活性氧自由基有很強烈的清除作用，能明顯地清除人體內有害的自由基，其清除能力比目前已知的抗氧化劑維生素E 高18 倍、比維生素C 高3至10 倍。

利用茶多酚的氧化能力，在各種疾病的治療中表現出優越的功效，如治療肝炎、糖尿病等，亦可防止心血管疾病、腦中風、抗癌、抗突變、抗衰老……此外，茶多酚的抗氧化成分還能防止和抑制毒化細胞及細胞間的傳染作用。

Tea is a popular drink all over the world. Apart from its distinctive flavor, tea also benefits our health with its antioxidant content including vitamin A, vitamin C, vitamin E and polyphenols. These antioxidants act as "free radical scavengers" and hence prevent and repair damage done by free radicals. Polyphenols, accounting for 25% of the dry mass of the tea, are strong anti-oxidants. Its anti-free-radical power is 18 times stronger than vitamin E and 10 times stronger than vitamin C. Also, one kind of tea polyphenols, epigallocatechin gallate (EGCG), can inhibit an enzyme called tNOX, which is required for cancer cell growth. This research aimed to test whether Oolong tea and tea polyphenols has inhibitory effect on cancer cells. It is found that Oolong tea extract and tea polyphenol can inhibit the growth of prostate cancer cell at 1mg/ml and 0.25mg/ml respectively.



#### 主要獎項 Major Awards

- 獲國際天文學聯會把編號 110073 小行星命名 「李安琪星」(2010)  
International Astronomical Union named the minor planet 110073 as "Lee On Ki" (2010)
- 入圍第 61 屆英特爾國際科學與工程大獎賽  
The 61<sup>st</sup> Intel International Science and Engineering Fair Finalist
- 第 24 屆全國青少年科技創新大賽(2009) 科技創新成果(中學) 一等獎  
The 24<sup>th</sup> China Adolescent Science and Technology Innovation Contest(2009) --- First Place Award in the category of Science and Technology Innovation Achievements
- 第 12 屆香港青少年科技創新大賽(2009-10) --- 個人創作大獎(中學)、最優秀項目獎(高中)、生物及健康學(高中)一等獎、英特爾國際科學與工程大獎賽附屬地區賽特別獎 - 美國試管生物學學會特別獎  
The 12<sup>th</sup> Hong Kong Youth Science & Technology Innovation Competition (2009-10) --- Young Scientist Award, Best of Category(Senior) Award, First Place Award in Biology and Health (Senior) , Intel ISEF Regional Special Award