國立臺灣大學技術行銷表

臺大案號:97 生 773

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產品/技術名稱	具生質能源應用價值的高耐受丁醇大腸桿菌
發明人/單位	阮雪芬/生命科學系
產品/技術說明	丁醇所能提供的能量和汽油相當，由於它的物理特性及安全性高，而且不需要改裝汽車引擎就可直接使用，所以它是非常適合當燃料。本發明產生出的高耐受丁醇大腸桿菌株，可應用於產生大量替代能源-丁醇。
應用範圍	應用於生質能源開發
產品/技術優勢	丁醇所能提供的能量和汽油相當，為一重要的工業用溶劑，由於它的物理特性、安全性高，而且不需要改裝汽車引擎就可直接使用，所以它比乙醇更適合當燃料。然而，當生物細胞在生產丁醇的同時，其生長會受到丁醇嚴重的抑制。所以要生物能大量產生丁醇的前題是需要找出高耐受丁醇的生物。本發明成功地改造出高耐受丁醇的大腸桿菌株。截至目前為止沒有找到利用篩選基因剃除株及蛋白質體技術，並以合成生物學方法製造出能耐受 5% 丁醇的大腸桿菌株。除此之外同時，也還未發現耐受丁醇大腸桿菌株的專利。
產品/技術 保護狀況	目前正在申請中華民國及美國專利

Marketing Abstract of NTU's Invention Disclosure

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Title	Butanol Tolerant *Escherichia coli* for Bioenergy Production
Inventor (s)	Hsueh-Fen Juan/ Department of Life Science
Brief Description	Butanol can be blended into gasoline at higher concentrations than ethanol without having to retrofit vehicles. Butanol also offers better fuel economy than gasoline-ethanol blends. Combination of concepts and methods from various modern science fields will create a new platform of technologies in efficient biofuel production from cellulosic biomass. Applying systematic approaches, we can obtain several pre-usable butanol tolerant mutants, and improve the ability to acclimatize the stress induced by butanol in a short period. We successfully obtained high butanol tolerant *E. coli* strains for application to develop new alternative energy.
Fields of Application	Application to Bioenergy production
Advantages	(when compared to the existing technologies) The development of new energy and alternative ones is a worthy and vital endeavor to solve the question of the oil runs-out. Butanol is a pure alcohol with energy content similar to that of gasoline and also a replacement for gasoline as a fuel, better than ethanol, due to more favorable physical properties, economics, safety and the fact that it works without modifying the engine of personal cars. We obtained high butanol tolerant *E. coli* strains for application to develop new alternative energy. Furthermore, the fuel run-out problem will be solved. We haven't found any patent for high butanol tolerant *E. coli* strains, so it's novel.
IP Right(s)	We are applying for ROC (Taiwan) and US patent now.