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「Regulation of the Cell Cycle on Progression in A549 Human Lung Cell and MCF-7 Human Breast Cell Treatment by Brazilian Medicinal Plant.」

ブラジル産薬用植物によるヒト由来肺がん細胞、乳がん細胞の増殖抑制作用

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Tabebuia avellanedae (TA), which is a plant that has been used for herbal medicine in South America and from Brazil to northern Argentina, is well known in traditional folk medicne used for the treatment of various diseases during five hundred years. The inner bark of this plant produced in Brazil is distributed in Asia as a herb tea and healthy life purpose. Previously, we reported that extract essense of TA (TA ess.) and including naphthoquinones type compounds (NQ 801) inhibited TPA-induced *in vitro* conventional assay and thereby acted as a chemopreventive agents against carcinogenic compounds, using mouse experimental systems. Furthermore, NQ801 had potent growth inhibitory effects *in vitro* against A549 and MCF-7 cells under usual condition. In this study, the purpose of more detail analysis of this useful sample was to develop the cell cyclic phase studies as an effective cancer chemosensitivity test and cell cycle was investigated by western blotting analysis. The antiproliferative effects of A549 and MCF-7 by NQ801 were found to be accompanied by a G1 arrest on cell cycle, following the expressions of cyclin D1 and cdk2. This notion was further supported by examination of other cell cycle-dependent expression and these results suggest that growth arrest induced by NQ801 blocks both cells in G1 phase of the cell cycle. Based on our *in vitro* and *in vivo* observation, it is tempting to speculate that NQ801 may find its place as interesting agent for the prevention and/or treatment human derived cancer cells.

■日本語訳

ブラジル産薬用植物で古来より種々の疾患に対して、伝承的に知られたその効能により用いられてきたタベブイアアベラネダエ(TA)に関し、がん疾患でとくに重要視されている肺がん、乳がんについて、その作用の基礎的検討を行った。現在、実際に一般に販売、使用されている形態のTAエッセンスならびにその中に含有する、ナフトキノン化合物であるNQ801を用いてヒト由来肺がん細胞、ならびにヒト由来乳がん細胞に対する効果を検討した。その結果は両細胞についてTAエッセンス、NQ801ともにがん細胞の特徴である、過剰増殖の状態に対して阻害をする効果を確認した。とくにNQ801についてはTAエッセンスに比較して、強い阻害効果を示すことから、TAエッセンスに含有するこの化合物が、がんに対して有効な効果を示すことが示唆された。さらに詳細な検討として、がん細胞周期における作用を検討したところ、細胞周期のある特定部位に作用することが判明し、がん疾患におけるこの化合物の有用性が評価できた。