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|--|---|--------|--------|-------------------------|------------------|--------|
| Principal Researcher                         | Tohru Fukuyama  |        |        | Number of Researchers   | 3                |        |
| Research Institution<br>• Department • Title | Professor, Graduate School of Pharmaceutical Sciences, The University of Tokyo  |        |        | Location of Institution | Bunkyo-ku, Tokyo |        |
| Title of Project                             | Development of Synthetic Routes to Heteroatom Containing Complex Natural Products by Highly Creative Strategy   |        |        |                         |                  |        |
| Abstract of Research Project                 | <p>The aim of this research project is to develop highly efficient and practical synthetic routes for synthesis of complex heteroatom containing natural products utilizing original synthetic methodology and creative synthetic design. The first topics are synthetic studies on variety of indole alkaloids based on our recently developed 2,3-disubstituted indole synthesis. Target compounds include vinblastine, vincristine, haplophytine, conophylline, and strychnine. A number of alkaloids such as lysergic acid, plakinidine D, discorhabdin C, duocarmycin A possessing nitrogen heterocycles have been found in nature. We would like to establish efficient synthetic routes of this class of compounds with our recently developed protocol for the synthesis of nitrogen heterocycles by Cu-mediated aromatic amination reaction. In addition, studies on the total synthesis of nitrogen containing natural products like ephedradine A, FR-901483, UCS-1025, altemicidin utilizing our secondary amine synthesis with nitrobenzenesulfonyl group will be thoroughly executed.</p> |        |        |                         |                  |        |
| References                                   | <p>"Stereocontrolled Total Synthesis of (+)-Vinblastine," Tohru Fukuyama <i>et al. J. Am. Chem. Soc.</i>, 124, 2137-2139 (2002)</p> <p>"Total Synthesis of Ecteinascidin 743," Tohru Fukuyama <i>et al. J. Am. Chem. Soc.</i>, 124, 6552-6554 (2002)</p>  |        |        |                         |                  |        |
| Term of Project                              | Fiscal years 2003-2007 . (5years)   |        |        |                         |                  |        |
| Budget Allocation<br>(in thousand of yen)    | FY2003  | FY2004 | FY2005 | FY2006                  | FY2007           | TOTAL  |
|  | 30,000  | 13,200 | 12,800 | 12,800                  | 11,500           | 80,300 |
| Homepage Address                             | <a href="http://www.f.u-tokyo.ac.jp/~fukuyama/index-j.htm">http://www.f.u-tokyo.ac.jp/~fukuyama/index-j.htm</a>   |        |        |                         |                  |        |