Patent Granted for Anti-cancer Research at Poona College of Pharmacy, Pune

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Despite the tremendous developments being made in cancer prevention and treatment, the disease has continued as one of the leading causes of mortality worldwide. In India, over a lakh of people succumb to different types of cancers. Existing treatments have been only to prolong the life span of patients. Therefore, new and ideal drugs need to be discovered.

Dr. Vithal M. Kulkarni, Professor Emeritus, Poona College of Pharmacy (formerly Prof. & Head, Pharma Div., UICT/ICT, Mumbai) initiated research work in cancer, and soon a research scholar Mr. Siddharth J. Modi joined for the Ph.D. degree of Bharati Vidyapeeth (Deemed to be) University under his guidance. Together they proposed a hypothesis for anti-cancer drug mechanism by the application of medicinal chemistry intuition and computational structure-based drug design approach. Within a short time, they designed and synthesized a series of 4-methyl-substituted-biphenyl-2-substitutedcarboxamides. Only eight compounds were synthesized and screened for anti-cancer activity against breast cancer cell lines, namely MDA-MB-468 and MCF-7, cytotoxicity against HeLa and HC-29 cell lines, and anti-angiogenic activity using CAMassay. Two compounds exhibited inhibition more than the marketed drug, Sorafenib Tosylate (IC_{50}: 1.53µM and 1.75µM). Acute oral toxicity, LD_{50} was found >2000mg/Kg in rats. They avoided thus the usual practice of irrational synthesis and biological activity screening, which lead to rapid discovery of potential drug candidates. Prompted by these results, they filed a patent in India in 2016. Upon examination of application No.:20161040152 and on satisfactory explanations, a "hearing" was held on 18th Aug.2020. Impressed by the rational approach of drug design and experiments, the Controller of Patents and Trademarks, Government of India, New Delhi, promptly GRANTED PATENT (NO. 345370 dated 27-08-2020) to them.This is one of the success story of computer-assisted drug design, which Dr. V.M. Kulkarni has pioneered in India. He has several patents to his credit.

The inventors are thankful to Hon. Chancellor Dr. Shivajirao S. Kadam, Pro-Vice-chancellor and Secretary Dr. Vishwajit Kadam, Vice-chancellor Dr. Manikrao Salunkhe, of Bharati Vidyapeeth (Deemed to be) University, and Dr. Kakasaheb R. Mahadik and Dr. Atmaram P. Pawar, I/C Principal for their encouragement.They also thank faculty members of the college for cooperation.

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सत्यमेव जयते

क्रमांक : 022109728
SL No :

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE

पेटेंट प्रमाणपत्र
PATENT CERTIFICATE

(Rule 74 Of The Patents Rules)

पेटेंट सं. / Patent No.	:	345370
आवेदन सं. / Application No.	:	201621040152
फाइल करने की तारीख / Date of Filing	:	24/11/2016
पेटेंटी / Patentee	:	1.VITHAL MADHVARAO KULKARNI 2.SIDDHARTH JITENDRAKUMAR MODI

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित 4-METHYL SUBSTITUTED BIPHENYL-2-CARBOXAMIDES AS ANTICANCER AGENTS नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 24th day of November 2016 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled 4-METHYL SUBSTITUTED BIPHENYL-2-CARBOXAMIDES AS ANTICANCER AGENTS as disclosed in the above mentioned application for the term of 20 years from the 24th day of November 2016 in accordance with the provisions of the Patents Act,1970.

एकस्य कार्यालय THE PATENT OFFICE GOVT.OF INDIA भारत सरकार

अनुदान की तारीख : 27/08/2020
Date of Grant :

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, **24th day of November 2018** को और उसके पश्चात प्रत्येक वर्ष मे उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 24th day of November 2018 and on the same day in every year thereafter.