ATC 2017 Antibody Therapeutics Conference

Curriculum Vitae

Name: Tian-Lu Cheng

Affiliation: Distinguished Professor, Kaohsiung Medical University

Short Biography (maximum of 400 words):

Current position

2015/08~, Vice Dean, College of Medicine, Kaohsiung Medical University

2014/9~, Director of Graduate Institude of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

2014/8~, Director, Center for Biomarkers and Biotech Drugs, Kaohsiung Medical University, Kaohsiung

2015/08~, Distinguished Professor, Department of Biomedical Science and Environmental Biology, Kaohsiung Medical University

Address: 100 Shih-Chuan 1st Road, San Ming District, Kaohsiung 807, Taiwan

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Experiences

2013/03~2014/7, Chairman, Office for Opereation of Industry-University Cooperation, Kaohsiung Medical University

2011/08~2013/2, Chairman, Center for Promotion of Industry-University Cooperation, Kaohsiung Medical University

2009/08~2011/07, Chairman, Department of Biomedical Science and Environmental Biology , Kaohsiung Medical University

2008/08~2015/8, Professor, Department of Biomedical Science and Environmental Biology , Kaohsiung Medical University

Research field : Antibody Engineering: Humanized Ab, Bispecific Ab, Pro-antibody and antibody drugs 2.Tumor Immunology 4. Molecular Imaging

Awards (optional)

1. 2014 Ministry of Science and Technology, Outstanding Research Award(科技部傑出研究獎);
2. 2014 The award of the 11th National Innovation Award in the Academic Research Category by the Institute for Biotechnology and Medicine Industry. (2014 年 第十一屆國家新創獎 學研創新獎)
3. 2015, The award of the 12th National Innovation Award in the Academic Research Category by the Institute for Biotechnology and Medicine Industry. (2015 年 第十二屆國家新創獎 學研創新獎)

4. 2016, The award of the 13th National Innovation Award in the Academic Research Category by the Institute for Biotechnology and Medicine Industry. (2016 年 第十三屆國家新創獎 學研創新獎)
5. 2016 Kaohsiung Medical University 20th Outstanding Alumni of Academic Research (2016 高雄醫學大學第 20 屆"學術研究類"傑出校友)

Publication, Patent and Technique Transfer

@ >60 publications, >13 patents,

@ 157 anti-PEG Ab material transfers /NT$ 16,644,289:

3-3 anti-PEG Ab /84technique transfers/NT$10,886,786 E11 anti-PEG Ab /72 material transfers/NT$5,683,807 , E11 hybridoma transfer/ NT$ 373,696

@ Ab lock (Hinge domain) technique transfers. The technique transfer payments are NT$551,800,000 (5 億 5 千 180 萬台幣) (Lab: http://lulab.kmu.edu.tw/)

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Speech Summary at ATC 2017

Speech Title:	XenoComputer: Develop fully humanized antibody drugs by computer-aided human V(D)J recombination

Speech Summary (200-400 words)

Over the past 30 years, most of the developments of therapeutic Abs derived from mouse, followed by humanizing the Ab sequences to prevent human anti-mouse immune responses when used in patients. However, traditional Ab humanization, such as complementarity-determining region (CDR) grafting, which still contains 15% mouse sequences, could result in loss of activity. The human Ab gene transgenic mouse, such as Xeno-Mouse were also developed to derive full-human therapeutic Abs, but it would require time to re-immunize and re-screen the potential Abs. Furthermore, the royal payments of patent licensing to produce human Abs from the transgenic mice are extremely high and are controlled by a very few companies, hence it imposes huge hurdles in transforming the potential mouse Abs into human therapeutic Abs, limiting the developments of therapeutic Abs. Therefore, it is desirable to develop a highly efficient full-humanization platform to replace the human Ab gene transgenic mouse to accelerate human therapeutic Ab development as a successful key to develop Ab drugs. To overcome the traditional problems of human therapeutic Ab developments, we have generated a XenoComputer: Full-humanization of mouse Ab by structure-based computational design combined with human Ab V(D)J recombination,We have successfully humanized six clinical-potential Abs(TNF-α, PD-1 and PEG) via this platform. The computer-aided V(D)J recombined Ab developing platform is expected to replace the traditional XenoMouse based Ab development. Furthermore, our computer-aided, Ab structure-based, humanization platform have also provided services for many labs for 5 years, It can also accelerate Taiwan's high-potential therapeutic Abs development and increase the competitiveness in biotechnology of our country in the world.