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刘贤金

刘贤金，男，博士，研究员，博士生导师。1963年4月生。主要从事农药毒理、毒副作用评价与安全管控技术体系研究。江苏省农业科学院副院长，食品质量安全研究重点实验室（省部共建）副主任，农业部农产品质量安全风险评估实验室（南京）主任，曾荣获国务院特殊津贴和国家有突出贡献的中青年专家称号，全国农业青年科技奖和农业部农业科技先进工作者等荣誉称号。是江苏省333人才第二层次培养对象和科技领军人才培养对象。目前主持国家自然科学基金重点项目，江苏省重点研发等项目。曾主持完成国家自然科学基金面上项目，农业公益性行业专项、973、948、江苏省农业自主创新重点项目等国家及省部级项目多项。发表研究论文两百余篇，其中SCI收录52篇，获得专利授权50余项，其中国际专利（PCT）13项。主持获得江苏省科技进步二等奖2项，三等奖1项，参与完成省部级以上科技成果8项。

近五年主要承担项目：

- 1、Cry毒素模拟物与昆虫潜在受体的分子互作规律研究（国家自然科学基金重点项目）
- 2、食品中Bt Cry毒素检测用广谱抗体的制备研究（国家自然科学基金）
- 3、食用农产品源头风险防范与控制技术（国家重点研发课题）
- 4、农产品产供安全过程管控技术研究与示范（农业部公益性行业专项）
- 5、蔬菜化学肥料和农药减量增效使用关键技术研究（江苏省省重点研发）
- 6、高档叶菜产品产业链技术创新与集成应用（江苏省自主创新重点项目）

代表性SCI论文（通讯作者）：

1. Xu C, Liu X, Liu Y, Zhang X, Zhang C, Li J, Liu X. High sensitive single chain variable fragment screening from a microcystin-LR immunized mouse phage antibody library and its

- application in immunoassay. *Talanta*. 2019 May 15;197:397-405.
2. Zhang L, Li Y, Liang Y, Liang K, Zhang F, Xu T, Wang M, Song H, Liu X, Lu B. Determination of phenolic acid profiles by HPLC-MS in vegetables commonly consumed in China. *Food Chem*. 2019 Mar 15;276:538-546.
 3. Dong S, Liu Y, Zhang X, Xu C, Liu X, Zhang C. Development of an immunochromatographic assay for the specific detection of *Bacillus thuringiensis* (Bt) Cry1Ab toxin. *Anal Biochem*. 2019 Feb 15;567:1-7.
 4. Hu X, Zhang X, Zhong J, Liu Y, Zhang C, Xie Y, Lin M, Xu C, Lu L, Zhu Q, Liu X. Expression of Cry1Ac toxin-binding region in *Plutella xylostella* cadherin-like receptor and studying their interaction mode by molecular docking and site-directed mutagenesis. *Int J Biol Macromol*. 2018 May;111:822-831.
 5. Dong S, Bo Z, Zhang C, Feng J, Liu X. Screening for single-chain variable fragment antibodies against multiple Cry1 toxins from an immunized mouse phage display antibody library. *Appl Microbiol Biotechnol*. 2018 Apr;102(7):3363-3374.
 6. Xu C, Yang Y, Liu L, Li J, Liu X, Zhang X, Liu Y, Zhang C, Liu X. Microcystin-LR nanobody screening from an alpaca phage display nanobody library and its expression and application. *Ecotoxicol Environ Saf*. 2018 Apr 30;151:220-227.
 7. Zhong J, Hu X, Zhang X, Liu Y, Xu C, Zhang C, Lin M, Liu X. Broad specificity immunoassay for detection of *Bacillus thuringiensis* Cry toxins through engineering of a single chain variable fragment with mutagenesis and screening. *Int J Biol Macromol*. 2018 Feb;107(Pt A):920-928.
 8. Xu C, Zhang C, Zhong J, Hu H, Luo S, Liu X, Zhang X, Liu Y, Liu X. Construction of an immunized rabbit phage display library for selecting high activity against *Bacillus thuringiensis* Cry1F toxin single-chain antibodies. *J Agric Food Chem*. 2017 Jul 26;65(29):6016-6022.
 9. Jiao L, Liu Y, Zhang X, Liu B, Zhang C, Liu X. Site-saturation mutagenesis library construction and screening for specific broad-spectrum single-domain antibodies against multiple Cry1 toxins. *Appl Microbiol Biotechnol*. 2017 Aug;101(15):6071-6082.
 10. Dong S, Zhang C, Liu Y, Zhang X, Xie Y, Zhong J, Xu C, Liu X. Simultaneous production of monoclonal antibodies against *Bacillus thuringiensis* (Bt) Cry1 toxins using a mixture

immunization. *Anal Biochem.* 2017 Aug 15;531:60-66.

11. Liu Y, Lin M, Zhang X, Hu X, Lin J, Hao J, He D, Zhang X, Xu C, Zhong J, Xie Y, Zhang C, Liu X. Development of competitive ELISA for the detection of bovine serum albumin using single-chain variable fragments. *Anal Biochem.* 2017 May 15;525:89-91.

12. Dong S, Zhang X, Liu Y, Zhang C, Xie Y, Zhong J, Xu C, Liu X. Establishment of a sandwich enzyme-linked immunosorbent assay for specific detection of *Bacillus thuringiensis* (Bt) Cry1Ab toxin utilizing a monoclonal antibody produced with a novel hapten designed with molecular model. *Anal Bioanal Chem.* 2017 Mar;409(8):1985-1994.

13. Xu C, Liu X, Zhang C, Zhang X, Zhong J, Liu Y, Hu X, Lin M, Liu X. Establishment of a sensitive time-resolved fluoroimmunoassay for detection of *Bacillus thuringiensis* CryIIe toxin based nanobody from a phage display library. *Anal Biochem.* 2017 Feb 1;518:53-59.

14. Xu C, Zhang X, Liu X, Liu Y, Hu X, Zhong J, Zhang C, Liu X. Selection and application of broad-specificity human domain antibody for simultaneous detection of Bt Cry toxins. *Anal Biochem.* 2016 Nov 1;512:70-77.

15. Dong S, Zhang C, Zhang X, Liu Y, Zhong J, Xie Y, Xu C, Ding Y, Zhang L, Liu X. Production and Characterization of Monoclonal Antibody Broadly Recognizing CryI Toxins by Use of Designed Polypeptide as Hapten. *Anal Chem.* 2016 Jul19;88(14):7023-32.

16. Zhao Y, Liang Y, Liu Y, Zhang X, Hu X, Tu S, Wu A, Zhang C, Zhong J, Zhao S, Liu X, Tu K. Isolation of broad-specificity domain antibody from phage library for development of pyrethroid immunoassay. *Anal Biochem.* 2016 Jun 1;502:1-7.

国际专利:

[1]Anthropogenic pest-resistant gene, anti-Cry1Ab toxin idiotypic single-chain antibody encoded by same, and application, 2017, US 9, 751, 952 B2 (美国)

发明人: 刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[2]Human-derived insect-resistant gene and anti-Cry1B toxin idio type single-chain antibody encoded thereby and application thereof, 2017, US 9, 770, 038 B2 (美国)

发明人: 刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[3]Human-derived insect-resistant gene and anti-Cry1C toxin idio type single-chain antibody encoded thereby and application thereof, 2017, US 9, 745, 385 B2 (美国)

发明人：刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[4]Human-derived insecticidal gene and insecticidal encoded thereby and application thereof, 2017, US 9, 725, 521 B2 (美国)

发明人：刘贤金、刘媛、谢雅晶、武爱华、张霄、徐重新、赵岩岩、仲建锋

[5]ヒトの昆虫抵抗性遺伝子とそれにコードされたユニークな抗CryAb毒素一本鎖抗体とその応用, 2017, 6236531 (日本)

发明人：刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[6]ヒトの昆虫抵抗性遺伝子とそれをコードする抗Cry1B毒素独特の一本鎖抗体とその応用, 2017, 6196382 (日本)

发明人：刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[7]ヒトの昆虫抵抗性遺伝子およびそのコードされたユニークな抗Cry1C毒素一本鎖抗体およびその応用, 2017, 6211703 (日本)

发明人：刘贤金、徐重新、张霄、刘媛、谢雅晶、张存政、余向阳、王冬兰

[8]ヒト殺虫遺伝子とそれをコードする殺虫性ペプチドとその応用, 2017, 6211702 (日本)

发明人：刘贤金、刘媛、谢雅晶、武爱华、张霄、徐重新、赵岩岩、仲建锋

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