



位置: 首页 > 研究队伍

搜索



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东北师范大学遗传与细胞研究所获博士学位; 1998-2001年在以色列 Weizmann 研究所做博士后, 从事小麦多倍体基因组进化研究; 2001-2004年在加拿大农业部做 Visiting Fellow 和 Biologist, 从事小麦抗赤霉病分子标记和种质创新及小麦多倍体基因组进化研究; 2004-2008年在美国 University of Missouri-Columbia 从事玉米功能基因组及植物人工染色体研究。2009年入选中国科学院"百人计划"。韩方普研究组主要从事小麦和玉米功能基因组、小麦染色体工程育种及植物人工染色体研究。

主要研究领域

远缘杂交育种和多倍体基因组进化

重点研究多倍体作物小麦及小偃麦的形成过程及机制。高效地转移、鉴定和跟踪外缘基因, 发掘具有重要育种价值的易位系和关键基因。揭示多倍体作物中基因组之间的互作与优势的分子机理; 创制、鉴定和评价小片段易位系和近缘种全基因组渗入系; 分离并详细研究来自野生物种的高产、优质、抗病虫和抗逆基因; 培育高产稳产、优质高效、抗病和耐逆的作物新品种。

植物着丝粒的结构和功能

在玉米着丝粒功能研究领域: 研究玉米染色体着丝粒功能“失活-激活”的表观遗传学调控机制。探讨DNA甲基化、组蛋白修饰以及小RNA与着丝粒功能的内在联系。

植物减数分裂

减数分裂过程中同源染色体的配对起始、重组、取向和分离的分子机理是国际上研究的热点。将以小麦和玉米的特殊突变体为材料来研究上述问题, 分离减数分裂相关基因并阐明其功能。

植物人工染色体

将利用不同的方法构建植物人工染色体。构建和优化适合多基因或完整代谢途径遗传转化的转基因载体。

植物基因定点突变及定向重组

随着玉米基因组序列的完成, 需要发展一种有效的方法来利用已知的序列信息进行定点突变和置换, 避免位置效应而进行重要基因功能的鉴定。利用人工锌指蛋白核酸酶技术对小麦和玉米的基因进行定点突变和置换, 将对基因功能研究和分子设计育种提供新的方法。

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