

附录 2 家马 SSR 标记遗传多样性研究汇总

Appendix 2 Summary of SSR Marker studies on genetic diversity of domestic horses

品种(数)	地区	研究结果	参考文献
Breed(s)	Region	Research results	References
日本地方品种 (7)、蒙古马 native Japanese breeds (7), Mongolian horse	日本群岛、蒙古高原 Japanese Archipelago, Mongolian Plateau	蒙古马的平均杂合度高于日本地方马品种, 并且包含了日本地方马品种所有的等位基因。	Tozaki et al, 2003
利皮扎马 Lipizzan horse	奥地利、克罗地亚、意大利、罗马尼亚、斯洛文尼亚、斯洛伐克、匈牙利 Austria, Croatia, Italy, Romania, Slovenia, Slovakia, Hungary	由于第一次和第二次世界大战后的育种目标和地理及社会政治隔离导致了种内一定程度的分化。	Achmann et al, 2004
加拉诺马、卢西塔诺马、索雷亚马 Garrano horse, Lusitano horse, Sorraia horse	伊比利亚半岛 Iberian Peninsula	加拉诺马和卢西塔诺马遗传变异程度较高。濒危品种索雷亚马的遗传变异较低, 这与其来自 12 匹祖先的奠基者效应以及小的有效群体规模有关。	Luis et al, 2007
宁强矮马、蒙古马 Ningqiang horse, Mongolian horse	中国 China	蒙古马遗传多样性大于宁强矮马, 但品种间遗传关系较近。	Du et al, 2009
中国地马品种(26) native Chinese horse breeds (26)	中国 China	中国马品种间遗传分化程度较低, 并且, 中国家马可由地理分布归类为江南、青藏高原、东北、西北和内蒙古等五个群体。	Ling et al, 2011
马瓦里马、斯皮蒂马、卡提阿瓦马 Marwari horse, Spiti horse, Kathiawari horse	印度 India	三个印度品种间分化和种内近亲繁殖程度较高。数量急剧下降至几千匹的卡提阿瓦马和斯皮蒂马可能发生了种群瓶颈效应。	Chauhan et al, 2011
胡克尔马 Hucul horse	中欧 Central Europe	胡克尔马遗传变异较高, 近交程度低。	Kusza et al, 2013
阿拉伯马 Arabian horse	中东 Middle East, 欧美 Europe& Northern America	中东阿拉伯马群体的遗传多样性高于欧美阿拉伯马群体, 且近交程度低。中东阿拉伯马不同种群间遗传分化低, 欧美不同种群间遗传分化高。	Khanshour et al, 2013
图瓦马 Tuva horse	俄罗斯西伯利亚 Russian Siberia	图瓦马具有高遗传多样性和低近交程度。发现了在欧洲马品种中未发现的等位基因 HMS1R。图瓦马与蒙古马和哈萨克马亲缘关系较近。	Chysyma et al, 2017
关中马 Guanzhong horse	中国 China	关中马遗传多样性较低, 这与自 20 世纪 70 年代以来实行的种内繁殖及高度近交有关。	Zeng et al, 2019
阿哈尔捷金马 Akhali-teke horse	意大利 Italy	意大利阿哈尔捷金马具有较高的遗传多样性和低近交程度。	Cozzi et al, 2018

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布塔马、沙尔塔马、 尤塔马 Boeta horse, Sharta horse, Yuta horse	不丹 Bhutan	不丹地方马品种遗传多样性丰富, 交配程度低。且种间基因交流频繁, 遗传分化程度低。	Dorji et al, 2018

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