

PERMANENT GENETIC RESOURCES NOTE

Permanent Genetic Resources added to Molecular Ecology Resources Database 1 October 2009–30 November 2009

MOLECULAR ECOLOGY RESOURCES PRIMER DEVELOPMENT CONSORTIUM, JUNGHWA AN,¹ ARNAUD BECHET,² ÅSA BERGGREN,³ SARAH K. BROWN,⁴ MICHAEL W. BRUFORD,⁵ QINGUI CAI,⁶ ANNA CASSEL-LUNDHAGEN,³ FRANK CEZILLY,⁸ SONG-LIN CHEN,⁹ WEI CHENG,¹⁰ SUNG-KYOUNG CHOI,¹ X.Y. DING,¹¹ YONG FAN,¹² KEVIN A. FELDHEIM,¹³ Z.Y. FENG,¹¹ VICKI L. FRIESEN,¹⁴ MARIA GAILLARD,⁸ JUAN A. GALARAZA,¹⁵ LEONARDO GALLO,¹⁶ K.N. GANESHIAH,^{17,18,19} JULIA GERACI,⁸ JOHN G. GIBBONS,²⁰ WILLIAM S. GRANT,¹⁰ ZAC GRAUVOGEL,¹⁰ S. GUSTAFSSON,²¹ JEFFREY R. GUYON,²² L. HAN,¹¹ DANIEL D. HEATH,²³ S. HEMMILÄ,²¹ J. DEREK HOGAN,²³ B.W. HOU,¹¹ JERNEJ JAKSE,²⁴ BRANKA JAVORNIK,²⁴ PETER KAŇUCH,³ KYUNG-KIL KIM,²⁵ KYUNG-SEOK KIM,¹ SANG-GYU KIM,²⁵ SANG-IN KIM,²⁶ WOO-JIN KIM,²⁵ YI-KYUNG KIM,²⁵ MAREN A. KLICH,²⁷ BRIAN R. KREISER,²⁸ YE-SEUL KWAN,²⁹ ATHENA W. LAM,³⁰ KELLY LASATER,¹ M. LASCOUX,²¹ HANG LEE,^{1,26} YUN-SUN LEE,¹ D.L. LI,³¹ SHAO-JING LI,³² W.Y. LI,³¹ XIAOLIN LIAO,⁹ ZLATKO LIBER,³³ LIN LIN,¹² SHAOYING LIU,³⁴ XIN-HUI LUO,^{9,35} Y.H. MA,¹¹ YAJUN MA,¹² PAULA MARCHELLI,^{16,36} MI-SOOK MIN,^{1,26} MARIA DOMENICA MOCCIA,³⁷ KUMARA P. MOHANA,^{38,17} MARCELLE MOORE,⁴⁰ JAMES A. MORRIS-POCOCK,¹⁴ HAN-CHAN PARK,¹ MONIKA PFUNDER,⁷ RADOSAVLJEVIĆ IVAN,³³ G. RAVIKANTH,^{17,18} GEORGE K. RODERICK,³⁰ ANTONIS ROKAS,²⁰ BENJAMIN N. SACKS,^{4,39,40} CHRISTOPHER A. SASKI,⁴¹ ZLATKO SATOVIC,⁴² SEAN D. SCHOVILLE,³⁰ FEDERICO SEBASTIANI,⁴³ ZHEN-XIA SHA,⁹ EUN-HA SHIN,²⁵ CAROLINA SOLIANI,^{16,36} N. SREEJAYAN,¹⁷ ZHENGXIN SUN,¹⁴ YONG TAO,³² SCOTT A. TAYLOR,¹⁴ WILLIAM D. TEMPLIN,¹⁰ R. UMA SHAANKER,^{17,18,38} R. VASUDEVA,⁴⁴ GIOVANNI G. VENDRAMIN,⁴⁵ RYAN P. WALTER,²³ GUI-ZHONG WANG,³² KE-JIAN WANG,³² Y.Q. WANG,³¹ RÉMI A. WATTIER,⁸ FUWEN WEI,⁴⁶ ALEX WIDMER,³⁷ STEFAN WOLTMANN,⁴⁷ YONG-JIN WON,²⁹ JING WU,¹² M.L. XIE,¹¹ GENBO XU,^{9,48} XIAO-JUN XU,³² HAI-HUI YE,³² XIANGJIANG ZHAN,^{46,5} F. ZHANG¹¹ and J. ZHONG³¹

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Abstract

This article documents the addition of 411 microsatellite marker loci and 15 pairs of Single Nucleotide Polymorphism (SNP) sequencing primers to the Molecular Ecology Resources Database. Loci were developed for the following species: *Acanthopagrus schlegeli*, *Anopheles lesteri*, *Aspergillus clavatus*, *Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus oryzae*, *Aspergillus terreus*, *Branchiostoma japonicum*, *Branchiostoma belcheri*, *Colias behrii*, *Coryphopterus personatus*, *Cynoglossus semilaevis*, *Cynoglossus semilaevis*, *Dendrobium officinale*, *Dendrobium officinale*, *Dysoxylum malabaricum*, *Metrioptera roeselii*, *Myrmeciza exsul*, *Ochotona thibetana*, *Neosartorya fischeri*, *Nothofagus pumilio*, *Onychodactylus fischeri*, *Phoenicopterus roseus*, *Salvia officinalis* L., *Scylla paramamosain*, *Silene latifo*, *Sula sula*, and *Vulpes vulpes*. These loci were cross-tested on the following species: *Aspergillus giganteus*, *Colias pelidne*, *Colias interior*, *Colias meadii*, *Colias eurytheme*, *Coryphopterus lipernes*, *Coryphopterus glaucofrenum*, *Coryphopterus eidolon*, *Gnatholepis thompsoni*, *Elacatinus evelynae*, *Dendrobium loddigesii*, *Dendrobium devonianum*, *Dysoxylum binectariferum*, *Nothofagus antarctica*, *Nothofagus dombeyii*, *Nothofagus nervosa*, *Nothofagus obliqua*, *Sula neboxii*, and *Sula variegata*. This article also documents the addition of 39 sequencing primer pairs and 15 allele specific primers or probes for *Paralithodes camtschaticus*.

This article documents the addition of 411 microsatellite marker loci and 39 pairs of Single Nucleotide Polymorphism (SNP) genotyping primers to the Molecular Ecology Resources Database. Table 1 contains information on the focal species, the number of loci developed, any other species the loci were tested in and the accession numbers for the loci in both the Molecular Ecology Resources Database and GenBank. The authors responsible for each

set of loci are listed in the final column. Table 2 presents information on SNP genotyping resources added to the MER database, and presents data on the focal species, the number of sequencing primer pairs, the observed number of SNPs, other species the loci were tested in, and the number of allele specific primers or probes. The MER database and GenBank accession numbers and the authors responsible are also listed. A full description of the development protocol for the loci presented here can be found on the Molecular Ecology Resources Database (<http://tomato.biol.trinity.edu/>).

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Table 1 Information on the focal species, the number of loci developed, any other species the loci were tested in and the accession numbers for the loci in both the Molecular Ecology Resources Database and GenBank. The authors responsible for each set of loci are listed in the final column

Species	No. primers developed	Other species tested	MER database no.	GenBank accession no.	Authors
<i>Acanthopagrus schlegeli</i>	20	n/a	43281–43300	GU121412- GU121431	Woo-Jin Kim, Kyung-Kil Kim, Yi-Kyung Kim, Eun-Ha Shin, Sang-Gyu Kim
<i>Anopheles lesteri</i>	11	n/a	43039–43049	EF620300, EF620303, EF620304, EF620306, EF620308- EF620310, EF620312, EF620314, EF620316, EF620318	Lin Lin, Yong Fan, Jing Wu, Yajun Ma
<i>Aspergillus clavatus</i> / <i>A. fumigatus</i> / <i>Neosartorya fischeri</i>	11	<i>A. giganteus</i>	42528–42538	See paper.	John G. Gibbons, Maren A. Klich, Antonis Rokas
<i>Aspergillus flavus</i> / <i>A. oryzae</i> / <i>A. terreus</i>	9	n/a	42539–42547	See paper.	John G. Gibbons, Maren A. Klich, Antonis Rokas
<i>Branchiostoma japonicum</i> / <i>B. belcheri</i>	18	n/a	43237–43254	FJ940866 - FJ940874, GQ917177 - GQ917179, EF583883, EF583886, FJ960509, FJ960510, FJ960511, FJ960512	J. Zhong, W.Y. Li, D.L. Li, Y.Q. Wang
<i>Colias behrii</i>	13	<i>Colias pelidne</i> , <i>Colias interior</i> , <i>Colias meadii</i> , <i>Colias eurytheme</i>	42497–42510	FN552751 - FN552763	Sean. D. Schoville, Athena W. Lam, George K. Roderick
<i>Coryphopterus personatus</i>	9	<i>Coryphopterus lipernes</i> , <i>Coryphopterus glaucofrenum</i> , <i>Coryphopterus eidolon</i> , <i>Gnatholepis thompsoni</i> , <i>Elacatinus evelynae</i>	43001–43009	GQ428990 - GQ428998	J. Derek Hogan, Juan A. Galarza, Ryan P. Walter Daniel D. Heath
<i>Cynoglossus semilaevis</i>	22	n/a	43215–43236	GH236748, GH236972, GH237142, GH237289, GH237357, GH237405, GH237561, GH237637, GH237752, GH237834, GH238140, zGH238245, GH238303, GH238518, GH238695, GH238801, GH238923, GH239092, GH239115, GH239197, GH237871, GH236888	Xin-Hui Luo, Zhen-Xia Sha, Song-Lin Chen

Table 1 (Continued).

Species	No. primers developed	Other species tested	MER database no.	GenBank accession no.	Authors
<i>Cynoglossus semilaevis</i>	35	n/a	43180–43214	EU906935, EU906936, EU906944, EU906946, EU906947, EU906951, EU906953, EU906954, EU906985, EU907006, EU906994, EU907010, EU907013, EU907016, EU907018, EU907020, EU907022, EU907064, EU907081, EU907075, EU907083, EU907097, EU907100, EU906963, EU907053, GQ426760, GQ426768, GQ426800, GQ426816, GQ426825, GQ426833, GQ426837, GQ426843, GQ426844, GQ426849	Genbo Xu, Xiaolin Liao, Songlin Chen
<i>Dendrobium officinale</i>	15	n/a	42511–42525	FJ805958, FJ817344, FJ824881, FJ824882, FJ824884, GQ149072 - GQ149077, GQ180950 - GQ180953	Y. H. Ma, L. Han, M. L. Xie, Z. Y. Feng, B. W. Hou, F. Zhang, X. Y. Ding
<i>Dendrobium officinale</i>	15	<i>Dendrobium loddigesii</i> <i>Dendrobium devonianum</i>	43092–43106	FJ821147 - FJ821149, FJ821151, FJ821153, FJ821155, FJ821157 - FJ821159, FJ971846 - FJ971851	L. Han, Y. H. Ma, M. L. Xie, B. W. Hou, Z. Y. Feng, X. Y. Ding
<i>Dysoxylum malabaricum</i>	15	<i>Dysoxylum binectariferum</i>	43010–43024	GF101997 - GF102011	S. Hemmilä, P. Mohana Kumara G. Ravikanth S. Gustafsson N. Sreejayan R. Vasudeva K.N. Ganeshaiiah R. Uma Shaanker M. Lascoux
<i>Metrioptera roeselii</i>	9	n/a	43171–43179	GQ472968 - GQ472973, GU046695, GQ472975 - GQ472976	Peter Kaňuch, Monika Pfunder, Åsa Berggren, Anna Cassel-Lundhagen
<i>Myrmeciza exsul</i>	20	n/a	42944–42963	GQ911204 - GQ911221, GQ999666, GQ999667	Kevin A. Feldheim, Stefan Woltmann, Brian R. Kreiser
<i>Ochotona thibetana</i>	18	n/a	43434–43451	GQ267698 - GQ267714	Xiangjiang Zhan, Shaoying Liu, Xingui Cai, Michael W. Bruford, Fuwen Wei
<i>Nothofagus pumilio</i>	9	<i>N. antarctica</i> , <i>N. dombeyii</i> , <i>N. nervosa</i> , <i>N. obliqua</i>	43030–43038	GQ398780 - GQ398788	Carolina Soliani, Federico Sebastiani, Paula Marchelli, Leonardo Gallo, Giovanni G. Vendramin

Table 1 (Continued).

Species	No. primers developed	Other species tested	MER database no.	GenBank accession no.	Authors
<i>Onychodactylus fischeri</i>	10	n/a	43107–43117	GQ267787 - GQ267791, GQ267793, GQ267795, GQ267796, GQ896346, GQ896348	Junghwa An, Yun-Sun Lee, Sung-Kyoung Choi, Sang-In Kim, Han-Chan Park, Kelly Lasater, Ye-Seul Kwan, Yong-Jin Won, Hang Lee, Kyung-Seok Kim, Mi-Sook Min
<i>Phoenicopterus roseus</i>	37	n/a	42964–43000	GF101815 - GF101850, GF101892	Julia Geraci, Maria Gaillard, Arnaud Bechet, Frank Cezilly, Rémi A. Wattier
<i>Salvia officinalis</i> L.	11		43160–43170	GQ376512 - GQ376522	Ivan Radosavljević Jernej Jakse Zlatko Satovic Branka Javornik Zlatko Liber
<i>Scylla paramamosain</i>	12	n/a	43269–43280	GU059596 - GU059602, GQ255640 - GQ255644	Xiao-Jun Xu, Gui-Zhong Wang, Ke-Jian Wang, Hai-Hui Ye, Shao-Jing Li, Yong Tao
<i>Silene latifo</i>	27	n/a	43050–43076	GH291665, GH291700, GH291734, GH291801, GH291924, GH291956, GH292096, GH292119, GH292354, GH292520, GH292550, GH292663, GH292699, GH292808, GH292901, GH292985, GT145114, GT145115, GH294092, GT145116, -GT145123	Maria Domenica Moccia Alex Widmer
<i>Sula sula</i>	15	<i>S. neboxii</i> <i>S. variegata</i>	43077–43091	GU175416 - GU175430	James A. Morris-Pocock, Scott A. Taylor, Zhengxin Sun, Vicki L. Friesen
<i>Vulpes vulpes</i>	31	n/a	43377–43346	GU179019 - GU179058	Marcelle Moore, Sarah K. Brown, Benjamin N. Sacks

Table 2 Information on the focal species, the sequencing primer pairs developed, the number of single nucleotide polymorphisms observed and any other species the loci were tested in. The next columns contain the number of allele specific primers and probes developed, and the Molecular Ecology Resources database and GenBank accession numbers, respectively. The authors responsible for each set of loci are listed in the final column

Species	No. primer pairs	No. SNPs in sequence	No. Allele specific primers/probe	MER database numbers	Genbank Accession no	Authors
<i>Paralithodes camtschaticus</i>	220	39	15	43331–43345	GU128158 - GU128172	Wei Cheng, Jeffrey R. Guyon, William S. Grant, Zac Grauvogel, Christopher A. Sasaki, William D. Templin