

Table S1. GenBank accession numbers of the *Iris* sequenced in this study.

Taxa	Population [individual]	<i>trnL-trnF</i>	<i>matK-trnK</i>
<i>Iris acutiloba</i> subsp. <i>lineolata</i>	ARMENIA (RBGK 2012-1109)	MW110370	MW110422
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, white flowers [ind1]	MW110371	MW110423
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, white flowers [ind2]	MW110372	MW110424
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, purple flowers [ind1]	MW110373	MW110425
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, purple flowers [ind2]	MW110374	MW110426
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, purple flowers [ind3]	MW110375	MW110427
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, purple flowers [ind4]	MW110376	MW110428
<i>Iris antilibanotica</i>	LEBANON: Kheibeh-Baalbeck, 1337 m, purple flowers [ind5]	MW110377	MW110429
<i>Iris atropurpurea</i>	ISRAEL (RBGK 1998-2808)	MW110378	MW110430
<i>Iris bismarkiana</i>	LEBANON: Sarada, 435 m [ind1]	MW110379	MW110431
<i>Iris bismarkiana</i>	LEBANON: Sarada, 435 m [ind2]	MW110380	MW110432
<i>Iris bismarkiana</i>	LEBANON: Sarada, 435 m [ind3]	MW110381	MW110433
<i>Iris bismarkiana</i>	LEBANON: Sarada, 435 m [ind4]	MW110382	MW110434
<i>Iris cedretii</i>	LEBANON: Bcharre, 1900 m [ind1]		MW110435
<i>Iris cedretii</i>	LEBANON: Bcharre, 1900 m [ind2]	MW110383	MW110436
<i>Iris cedretii</i>	LEBANON: Bcharre, 1900 m [ind3]	MW110384	MW110437
<i>Iris cedretii</i>	LEBANON: Bcharre, 1900 m [ind4]	MW110385	MW110438
<i>Iris histrio</i>	LEBANON: Ehden [ind1]	MW110365	MW110416
<i>Iris histrio</i>	LEBANON: Ehden [ind2]	MW110366	MW110417
<i>Iris histrio</i>	LEBANON: Ehden [ind3]		MW110418
<i>Iris histrio</i>	LEBANON: Barouk [ind1]	MW110367	MW110419
<i>Iris histrio</i>	LEBANON: Barouk [ind2]	MW110368	MW110420
<i>Iris histrio</i>	LEBANON: Barouk [ind3]	MW110369	MW110421
<i>Iris iberica</i> subsp. <i>elegantissima</i>	TURKEY: 2200 m (RBGK 1999-4347)	MW110386	MW110439
<i>Iris kirkwoodiae</i> subsp. <i>kirkwoodiae</i>	TURKEY (RBGK 1994-2407)	MW110387	MW110440
<i>Iris lortetii</i>	LEBANON: Mays el Jabal, 640 m	MW110388	MW110441
<i>Iris mesopotamica</i> (<i>I. ×germanica</i>)	LEBANON: Mrouje, 1200 m [ind1]		MW110458
<i>Iris mesopotamica</i> (<i>I. ×germanica</i>)	LEBANON: Mrouje, 1200 m [ind2]	MW110405	MW110459
<i>Iris palaestina</i>	LEBANON: Joun, 460 m [ind1]	MW110407	MW110461
<i>Iris palaestina</i>	LEBANON: Joun, 460 m [ind2]	MW110408	MW110462
<i>Iris palaestina</i>	LEBANON: Joun, 460 m [ind3]	MW110409	MW110463
<i>Iris palaestina</i>	LEBANON: Joun, 460 m [ind4]	MW110410	MW110464
<i>Iris paradoxa</i>	ARMENIA (RBGK 1977-4470)	MW110389	MW110442
<i>Iris persica</i>	LEBANON: Yammouneh [ind1]		MW110465
<i>Iris persica</i>	LEBANON: Yammouneh [ind2]	MW110411	MW110466
<i>Iris persica</i>	LEBANON: Quaa, 700 m [ind1]	MW110412	MW110467
<i>Iris persica</i>	LEBANON: Quaa, 700 m [ind2]	MW110413	MW110468
<i>Iris persica</i>	LEBANON: Quaa, 700 m [ind3]	MW110414	MW110469
<i>Iris persica</i>	LEBANON: Quaa, 700 m [ind4]	MW110415	
<i>Iris petrana</i>	(RBGK 1990-3180)	MW110390	MW110443
<i>Iris sari</i>	(RBGK 2011-1955)	MW110391	MW110444
<i>Iris sofarana</i> subsp. <i>kasruwana</i>	LEBANON: Ehmej, 1217 m [ind1]	MW110392	MW110445
<i>Iris sofarana</i> subsp. <i>kasruwana</i>	LEBANON: Ehmej, 1217 m [ind2]	MW110393	MW110446
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Dahr El Baydar, 1640 m [ind1]	MW110394	MW110447
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Dahr El Baydar, 1640 m [ind2]	MW110395	MW110448
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Dahr El Baydar, 1640 m [ind3]	MW110396	MW110449
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Dahr El Baydar, 1640 m [ind4]	MW110397	MW110450
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Hazzerta, 1530 m [ind1]	MW110398	MW110451
<i>Iris sofarana</i> subsp. <i>sofarana</i>	LEBANON: Hazzerta, 1530 m [ind2]	MW110399	MW110452
<i>Iris sprengeri</i>	TURKEY: 1000 m (RBGK 2011-1958)	MW110400	MW110453
<i>Iris unguicularis</i> subsp. <i>cretensis</i>	LEBANON: Baadarane, 1100 m	MW110406	MW110460
<i>Iris westii</i>	LEBANON: Tawmet Jezzine, 1300 m [ind1]	MW110401	MW110454
<i>Iris westii</i>	LEBANON: Tawmet Jezzine, 1300 m [ind2]	MW110402	MW110455

<i>Iris westii</i>	LEBANON: Tawmet Jezzine, 1300 m [ind3]	MW110403	MW110456
<i>Iris westii</i>	LEBANON: Tawmet Jezzine, 1300 m [ind4]	MW110404	MW110457

Table S2. Compendium of genome size data (2C-values) currently available for *Iris*, together with information on the subgeneric and sectional assignments of each species. The infrageneric classification follows Wilson (2011). Published genome size values were obtained from the Plant DNA C-values database release 7.1 using the “all estimates” search option (Leitch et al. 2019), Choi et al. (2020) and Weber et al. (2020). We removed two accessions of imprecise species identification, *I. aff. maracandica* and *I. aff. orchoides*, and the *Iris sofarana* accession from Bou Dagher-Karrat et al. (2013) that has been reassessed in the present study. The final dataset includes new and published genome sizes for 89 *Iris* species.

Taxon	Subgenus	Section	2C (pg)	Reference for genome size data
<i>Iris acutiloba</i> subsp. <i>acutiloba</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.72	This study
<i>Iris acutiloba</i> subsp. <i>lineolata</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.94	This study
<i>Iris acutiloba</i> subsp. <i>lineolata</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.73	This study
<i>Iris adriaca</i>	<i>Iris</i>	<i>Iris</i>	12.64	Weber et al. 2020
<i>Iris afghanica</i>	<i>Iris</i>	<i>Regelia</i>	14.67	This study
<i>Iris albicans</i>	<i>Iris</i>	<i>Iris</i>	24.84	This study
<i>Iris albomarginata</i>	<i>Scorpiris</i>		20.3	Hanson et al. 1999, unpublished
<i>Iris albomarginata</i>	<i>Scorpiris</i>		37.7	Hanson et al. 1999, unpublished
<i>iris antilibanotica</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.83	This study
<i>Iris antilibanotica</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.05	This study
<i>Iris aphylla</i> subsp. <i>hungarica</i>	<i>Iris</i>	<i>Iris</i>	20.53	Vesely et al. 2012
<i>Iris assadiana</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.44	This study
<i>Iris atropurpurea</i>	<i>Iris</i>	<i>Oncocyclus</i>	18.53	This study
<i>Iris barnumiae</i> x <i>I. paradoxa</i> f. <i>choschab</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.31	This study
<i>Iris bismarckiana</i>	<i>Iris</i>	<i>Oncocyclus</i>	18.24	This study
<i>Iris bismarckiana</i>	<i>Iris</i>	<i>Oncocyclus</i>	19.24	This study
<i>Iris bloudovii</i>	<i>Iris</i>	<i>Psammiris</i>	10.66	This study
<i>Iris bosniaca</i>	<i>Iris</i>	<i>Iris</i>	11.66	Siljak-Yakovlev et al. 2010
<i>Iris bosniaca</i>	<i>Iris</i>	<i>Iris</i>	12.04	Pustahija et al. 2013
<i>Iris brevicaulis</i>	<i>Limmiris</i> I (core <i>Limmiris</i>)		19.75	Kentner et al. 2003
<i>Iris bucharica</i>	<i>Scorpiris</i>		16.9	Hanson et al. 1999, unpublished
<i>Iris bucharica</i>	<i>Scorpiris</i>		17.3	Hanson et al. 1999, unpublished
<i>Iris camillae</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.13	This study
<i>Iris capnoides</i>	<i>Scorpiris</i>		19	Hanson et al. 1999, unpublished
<i>Iris cedretii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.83	This study
<i>Iris damascena</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.44	This study
<i>Iris danfordiae</i>	<i>Hermodactyloides</i>		32.3	Zonneveld et al. 2005
<i>Iris dichotoma</i>	<i>Pardanthopsis</i>		6.68	Choi et al. 2020
<i>Iris domestica</i>	<i>Pardanthopsis</i>		9.5	Choi et al. 2020
<i>Iris ensata</i>	<i>Limmiris</i> I (core <i>Limmiris</i>)		15.52	Choi et al. 2020
<i>Iris foetidissima</i>	<i>Limmiris</i> II (<i>Xyridion</i>)		14.46	Vesely et al. 2012
<i>Iris fulva</i>	<i>Limmiris</i> I (core <i>Limmiris</i>)		19.57	Kentner et al. 2003
<i>Iris germanica</i>	<i>Iris</i>	<i>Iris</i>	11.74	Siljak-Yakovlev et al. 2010
<i>Iris germanica</i>	<i>Iris</i>	<i>Iris</i>	24.25	Weber et al. 2020
<i>Iris germanica</i>	<i>Iris</i>	<i>Iris</i>	24.9	Zonneveld et al. 2005
<i>Iris graeberiana</i> cv. White Fall	<i>Scorpiris</i>		27.5	Hanson et al. 1999
<i>Iris graeberiana</i> cv. Yellow Fall	<i>Scorpiris</i>		25.5	Hanson et al. 1999
<i>Iris graminea</i>	<i>Limmiris</i> II (<i>Xyridion</i>)		10.58	Siljak-Yakovlev et al. 2010

<i>Iris haynei</i> var. <i>jordana</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.2	This study
<i>Iris hexagona</i>	<i>Limniris I (core Limniris)</i>		19.59	Kentner et al. 2003
<i>Iris histrio</i>	<i>Hermodactyloides</i>		24.96	Bou Dagher-Kharrat et al. 2013
<i>Iris histrio</i>	<i>Hermodactyloides</i>		56.4	Goldblatt et al. 1984
<i>Iris hoogiana</i>	<i>Iris</i>	<i>Regelia</i>	30.31	This study
<i>Iris iberica</i> subsp. <i>elegantissima</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.89	This study
<i>Iris iberica</i> subsp. <i>iberica</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.25	This study
<i>Iris illyrica</i>	<i>Iris</i>	<i>Iris</i>	12.31	Siljak-Yakovlev et al. 2010
<i>Iris kirkwoodiae</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.25	This study
<i>Iris kirkwoodiae</i> subsp. <i>kirkwoodiae</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.83	This study
<i>Iris koreana</i>	<i>Limniris I (core Limniris)</i>		14.58	Choi et al. 2020
<i>Iris korolkovii</i>	<i>Iris</i>	<i>Regelia</i>	16.03	This study
<i>Iris lacustris</i>	<i>Limniris IV (Lophiris)</i>		8.4	Zonneveld et al. 2005
<i>Iris laevigata</i>	<i>Limniris I (core Limniris)</i>		14.24	Choi et al. 2020
<i>Iris lineata</i>	<i>Iris</i>	<i>Regelia</i>	29.77	This study
<i>Iris longipetala</i>	<i>Limniris III</i>		15.84	This study
<i>Iris lortetii</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.46	Bou Dagher-Kharrat et al. 2013
<i>Iris lortetii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.38	This study
<i>Iris lortetii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.53	This study
<i>Iris magnifica</i>	<i>Scorpiris</i>		18.3	Hanson et al. 1999
<i>Iris mariae</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.34	This study
<i>Iris meda</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.21	This study
<i>Iris mesopotamica</i>	<i>Iris</i>	<i>Iris</i>	29.84	Bou Dagher-Kharrat et al. 2013
<i>Iris minutoaurea</i>	<i>Limniris I (core Limniris)</i>		7.7	Choi et al. 2020
<i>Iris mirabilis</i>	<i>Iris</i>	<i>Oncocyclus</i>	15.69	This study
<i>Iris nelsonii</i>	<i>Limniris I (core Limniris)</i>		20.04	Kentner et al. 2003
<i>Iris nigricans</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.68	This study
<i>Iris odaesanensis</i>	<i>Limniris I (core Limniris)</i>		7.44	Choi et al. 2020
<i>Iris orchioides</i>	<i>Scorpiris</i>		19.38	Hanson et al. 1999
<i>Iris orchioides</i>	<i>Scorpiris</i>		20.95	Hanson et al. 1999
<i>Iris oxypetala</i>	<i>Limniris I (core Limniris)</i>		12.16	Choi et al. 2020
<i>Iris palaestina</i>	<i>Scorpiris</i>		20.72	Vesely et al. 2012
<i>Iris palaestina</i>	<i>Scorpiris</i>		21.56	Bou Dagher-Kharrat et al. 2013
<i>Iris paradoxa</i>	<i>Iris</i>	<i>Oncocyclus</i>	17.32	This study
<i>Iris persica</i>	<i>Scorpiris</i>		18.89	This study
<i>Iris persica</i>	<i>Scorpiris</i>		19.05	This study
<i>Iris persica</i>	<i>Scorpiris</i>		20.99	This study
<i>Iris petrana</i>	<i>Iris</i>	<i>Oncocyclus</i>	18.01	This study
<i>Iris petrana</i>	<i>Iris</i>	<i>Oncocyclus</i>	18.17	This study
<i>Iris pseudacorus</i>	<i>Limniris I (core Limniris)</i>		11.04	Bou Dagher-Kharrat et al. 2013
<i>Iris pseudacorus</i>	<i>Limniris I (core Limniris)</i>		11.2	Zonneveld et al. 2005
<i>Iris pseudacorus</i>	<i>Limniris I (core Limniris)</i>		11.33	Siljak-Yakovlev et al. 2010
<i>Iris pseudacorus</i>	<i>Limniris I (core Limniris)</i>		11.78	Choi et al. 2020
<i>Iris pseudacorus</i>	<i>Limniris I (core Limniris)</i>		12.8	Kenton and Owens 1988, unpublished
<i>Iris pseudopallida</i>	<i>Iris</i>	<i>Iris</i>	12.75	Siljak-Yakovlev et al. 2010
<i>Iris pumila</i>	<i>Iris</i>	<i>Iris</i>	13.62	Siljak-Yakovlev et al. 2010
<i>Iris pumila</i>	<i>Iris</i>	<i>Iris</i>	21.27	Vesely et al. 2012
<i>Iris pumila</i>	<i>Iris</i>	<i>Iris</i>	26.4	Zonneveld et al. 2005
<i>Iris regis-uzziae</i>	<i>Scorpiris</i>		22.8	This study
<i>Iris reichenbachii</i>	<i>Iris</i>	<i>Iris</i>	11.91	Siljak-Yakovlev et al. 2010
<i>Iris reticulata</i>	<i>Hermodactyloides</i>		14.1	Zonneveld et al. 2005

<i>Iris reticulata</i> cv. Harmony	<i>Hermodactyloides</i>		20.5	Zonneveld et al. 2005
<i>Iris rossi</i>	<i>Limniris I (core Limniris)</i>		7.46	Choi et al. 2020
<i>Iris rubromarginata</i>	<i>Iris</i>	<i>Iris</i>	13.21	Pustahija et al. 2013
<i>Iris rubromarginata</i>	<i>Iris</i>	<i>Iris</i>	13.21	Siljak-Yakovlev et al. 2010
<i>Iris ruthenica</i>	<i>Limniris I (core Limniris)</i>		4.84	Choi et al. 2020
<i>Iris samariae</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.56	This study
<i>Iris sanguinea</i>	<i>Limniris I (core Limniris)</i>		10.46	Choi et al. 2020
<i>Iris sari</i>	<i>Iris</i>	<i>Oncocyclus</i>	18.03	This study
<i>Iris scariosa</i>	<i>Iris</i>	<i>Iris</i>	13.09	This study
<i>Iris schelkovnikovii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.11	This study
<i>Iris setosa</i>	<i>Limniris I (core Limniris)</i>		11.26	Choi et al. 2020
<i>Iris sibirica</i>	<i>Limniris I (core Limniris)</i>		4.2	Olszewska and Osiecka 1982
<i>Iris sibirica</i>	<i>Limniris I (core Limniris)</i>		8.95	Vesely et al. 2012
<i>Iris sibirica</i>	<i>Limniris I (core Limniris)</i>		9.61	Šmarda et al. 2014
<i>Iris sintenisii</i>	<i>Limniris I (core Limniris)</i>		8	Zonneveld et al. 2005
<i>Iris sofarana</i> subsp. <i>kasruwoana</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.36	Bou Dagher-Kharrat et al. 2013
<i>Iris sofarana</i> subsp. <i>kasruwoana</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.68	This study
<i>Iris sofarana</i> subsp. <i>sofarana</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.22	This study
<i>Iris sofarana</i> subsp. <i>sofarana</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.9	This study
<i>Iris sprengeri</i>	<i>Iris</i>	<i>Oncocyclus</i>	19.2	This study
<i>Iris stenophylla</i>	<i>Scorpiris</i>		17.06	Hanson et al. 2002, unpublished
<i>Iris stenophylla</i>	<i>Scorpiris</i>		21.93	Hanson et al. 2002, unpublished
<i>Iris stenophylla</i>	<i>Scorpiris</i>		23.35	Hanson et al. 2002, unpublished
<i>Iris stolonifera</i>	<i>Iris</i>	<i>Regelia</i>	30.24	This study
<i>Iris tectorum</i>	<i>Limniris IV (Lophiris)</i>		2.13	Zhang et al. 2013
<i>Iris tubergeniana</i>	<i>Scorpiris</i>		18.77	Hanson et al. 1999, unpublished
<i>Iris tubergeniana</i>	<i>Scorpiris</i>		22.1	Hanson et al. 1999, unpublished
<i>Iris unguicularis</i> subsp. <i>cretensis</i>	<i>Limniris VI (Siphonostylis)</i>		17.8	Bou Dagher-Kharrat et al. 2013
<i>Iris uniflora</i>	<i>Limniris I (core Limniris)</i>		4.92	Choi et al. 2020
<i>Iris variegata</i>	<i>Iris</i>	<i>Iris</i>	11.11	Vesely et al. 2012
<i>Iris variegata</i>	<i>Iris</i>	<i>Iris</i>	12.24	Siljak-Yakovlev et al. 2010
<i>Iris versicolor</i>	<i>Limniris I (core Limniris)</i>		2.1	Bai et al. 2012
<i>Iris vicaria</i>	<i>Scorpiris</i>		16.93	Hanson et al. 1999, unpublished
<i>Iris vicaria</i>	<i>Scorpiris</i>		30	Hanson et al. 1999, unpublished
<i>Iris vicaria</i>	<i>Scorpiris</i>		33.8	Hanson et al. 1999, unpublished
<i>Iris westii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16	This study
<i>Iris yebudii</i> subsp. <i>yebudii</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.2	This study
<i>Iris yeruchamensis</i>	<i>Iris</i>	<i>Oncocyclus</i>	16.54	This study
<i>Iris zenaidae</i>	<i>Scorpiris</i>		37.2	Hanson et al. 1999, unpublished