MASC Clone-based Functional Genomics Resources (ORFeomics)- 2007 Subcommittee Report

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A number of consortia and individual laboratories have created clone resources that they chose to share with the research community at large via stock centers located in the USA, Europe and Japan:

- the Arabidopsis Biological Resource Center (ABRC, USA)
  http://www.biosci.ohio-state.edu/pcmb/Facilities/abrc/abrchome.htm
- the RIKEN BioResource Center (BRC, Japan)
  http://www.brc.riken.jp/lab/epd/Eng/catalog/pDNA.shtml
- the GABI Primary Database (GABI/RZPD, Germany)
  http://gabi.rzpd.de/
- the National Resources Centre for Plant Genomics (CNRGV, France)
  http://cnrgv.toulouse.inra.fr/ENG/index.html
- the Center for Eukaryotic Structural Genomics (CESG, USA)
  http://www.uwstructuralgenomics.org/
- the European Arabidopsis Stock Centre (NASC, United Kingdom)
  http://arabidopsis.info/
- the BCCM/LMBP Plasmid and DNA library collection (BCCM/LMBP, Belgium)
  http://bccm.belspo.be/db/lmbp_gst_clones/

- The table in the next page provides an overview of the type of clones these stock centers distribute including full length cDNAs, ORFs and silencing vectors. Most of the collections have been created in format compatible with recombinational cloning protocols.

- Access to well-documented and cheap clones undoubtedly boosts *Arabidopsis* research projects. These clones are exploited by scientists interested in the functional characterization of only a few genes. They also enable more systematic approaches focusing on the analysis of large gene sets. But despite these great assets, and unlike developments in other eukaryotic model species, *Arabidopsis* clone-based functional genomics datasets are still rare. Future progress in this area will depend on the funding of ambitious projects and on the development of novel technologies for the high-throughput analysis of genetic perturbations introduced in plant cells.

Creator	Format	Focus	Validation	Count	URL	Stock center
ORF clones						
SSP consortium & Salk Institute	Univector pUNI51	Random	Full sequence	14,154	signal.salk.edu/2010/index.html	ABRC
Salk Institute	Gateway entry	Random	Full sequence	1,012	signal.salk.edu/2010/index.html	ABRC
TIGR	Gateway entry	Hypothetical genes	Full sequence	2,110	www.tigr.org/tdb/hypos/ TargetGeneList.shtml	ABRC
Peking-Yale Joint Center	Gateway entry	Transcription factors	5' and 3' end seq.	1,150		ABRC
Dinesh-Kumar et al.	Gateway Expression (from Peking-Yale JC)	TAP-tagged transcription factor		1,100		ABRC
REGIA	Gateway entry	Transcription factors	5' and 3' end seq.	~ 1,000	gabi.rzpd.de/materials/	GABI/RZPD
CESG	Gateway entry [c]	Potential new fold	Full single pass seq.	~ 1,500	www.uwstructuralgenomics.org/ cloning.htm	CESG
ATOME 1	Gateway entry	Random	5' and 3' end seq.	~ 2,000	http://www.evry.inra.fr/public/ projects/orfeome/orfeome.html	CNRGV
ATOME 2	Gateway entry, no stop	Random (from SSP)	5' and 3' end seq.	~ 3,500	same	CNRGV
Doonan et al.	Gateway Expression (from SSP)	GFP fusion for subcellular location		155		ABRC
Callis et al.	Gateway entry	Protein ubiquitination	Full sequence	111	plantsubq.genomics.purdue.edu	ABRC
Sheen et al.	Expression	Epitope tagged MAPK	Full sequence	50	http://genetics.mgh.harvard.edu/ sheenweb/category_genes.html	ABRC
cDNA clones						
RIKEN/SSP/ Salk Institute	λ ZAP or λ PS	Random	Full sequence	16,913	http://www.brc.riken.go.jp/lab/ epd/Eng/order/order.shtml	BRC
RIKEN/SSP/ Salk Institute	λ ZAP or λ PS	Random	Single pass	246,640	same	BRC
MPI-MG	Gateway expression	Random	5' end seq.	4,500	gabi.rzpd.de/materials/	GABI/RZPD
Génoscope/LTI	Gateway entry	Random	Full single pass seq.	28,743	www.genoscope.cns.fr/Arabidopsis	CNRGV
RNAi clones						
AGRIKOLA	Gateway entry	Random	PCR sized insert	28,049	www.agrikola.org	NASC, ABRC
AGRIKOLA	Gateway entry	Random	Pure, seq. validated	368	http://bccm.belspo.be/db/ lmbp_gst_clones/	BCCM/LMBP
AGRIKOLA	hp RNA expression	Random	PCR sized insert	26,318	www.agrikola.org	NASC
CFGC	ds RNA expression	Chromatin remodel.	Single pass seq.	162	www.chromdb.org	ABRC