References Project Articles

- 1) Shi, Jincai et al. A phosphate starvation response-centered network regulates mycorrhizal symbiosis. Cell. 2021
- 2) He, Qi et al. OsKANADI1 and OsYABBY5 regulate rice plant height by targeting GIBERELLIN 2-OXIDASE6. The Plant cell. 2024
- 3) Wang, Ruyi et al. An ORFeome of rice E3 ubiquitin ligases for global analysis of the ubiquitination interactome. Genome biology. 2022
- 4) Chen, Xi et al. The MKK3-MPK7 cascade phosphorylates ERF4 and promotes its rapid degradation to release seed dormancy in Arabidopsis. Molecular plant. 2023

Yeast Hybrid Project Article Cases

Library species	Journal	Article title	Method
Rice	Science	Enhanced sustainable green revolution yield via nitrogen-responsive chromatin modulation in rice	Y2H Screening（GAL4 system）
Arabidopsis	Molecular Plant	Counteraction of ABA-Mediated Inhibition of Seed Germination and Seedling Establishment by ABA Signaling Terminator in Arabidopsis	Y2H Screening（GAL4 system）
Wheat	Plant Physiology	Glutathione S-transferase interactions enhance wheat resistance to powdery mildew but not wheat stripe rust	Y2H Screening（GAL4 system）
Zea mays	Journal of Integrative Plant Biology	An ARF24–ZmArf2 Module Influences Kernel Size in Different Maize Haplotypes	Y1H Screening
Soybean	Nature Communications	The B-type response regulator GmRR11d mediates systemic inhibition of symbiotic nodulation	Y2H Screening（GAL4 system）
Cotton	International Journal of Biological Macromolecules	Late embryogenesis abundant gene LEA3 (Gh_A08G0694) enhances drought and salt stress tolerance in cotton	Y2H Screening（GAL4 system）
Tomato	New Phytologist	A zinc finger protein SlSZP1 protects SlSTOP1 from SlRAE1-mediated degradation to modulate aluminum resistance	Y2H Screening（GAL4 system）
Apple	Plant Physiology	The Apple BTB Protein MdBT2 Positively Regulates MdCOP1 Abundance to Repress Anthocyanin Biosynthesis	Y2H Screening（GAL4 system）
Watermelon	Plant Cell	Evolutionary Gain of Oligosaccharide Hydrolysis and Sugar Transport Enhanced Carbohydrate Partitioning in Sweet Watermelon Fruits	Y1H Screening
Pinus	Forestry Research	Determination of conifer age biomarker DAL1 interactome using Y2H-seq	Y2H Screening（GAL4 system）
Tea Plant	the Plant Journal	A flavonoid metabolon: cytochrome b5 enhances B-ring trihydroxylated flavan-3-ols synthesis in tea plants	Y2H Screening（split-ubiquitin system）
Poplar	Plant Biotechnology Journal	PagARGOS promotes low-lignin wood formation in poplar	Y2H Screening（split-ubiquitin system）
Cucumber	Journal of Advanced Research	The CsTM alters multicellular trichome morphology and enhances resistance against aphid by interacting with CsTIP1;1 in cucumber	Y2H Screening（split-ubiquitin system）
Chrysanthemum	Plant Physiology	Transcription factor CmHSFA4-CmMYB53 complex enhances salt tolerance in chrysanthemum by repressing CmMYB121 expression	Y2H Screening（GAL4 system）
Grape	Horticulture Research	miR156b-targeted VvSBP8/13 functions downstream of the abscisic acid signal to regulate anthocyanins biosynthesis in grapevine fruit under drought	Y1H Screening
Salvia miltiorrhiza	Industrial Crops and Products	SmJRB1 positively regulates the accumulation of phenolic acid in Salvia miltiorrhiza	Y2H Screening（GAL4 system）
Pear	Journal of Experimental Botany	PbMYB80 regulates stone cells lignification and undergoes RING finger protein PbRHY1 mediated degradation in pear fruit	Y2H Screening（GAL4 system）
Walnut	Horticulture Research	JrPHL8-JrWRKY4-JrSTH2L module regulates resistance to Colletotrichum gloeosporioides in walnut	Y1H Screening
Lilium brownii	Plant Physiology and Biochemistry	Ferric reduction oxidase in Lilium pumilum affects plant saline-alkaline tolerance by regulating ROS homeostasis	Y2H Screening（GAL4 system）
Safflower	Frontiers in Plant Science	Both Two CsMCO3 Transcripts Promoting the Accumulation of the Flavonoid Profiles in Overexpressed Transgenic Safflower	Y1H Screening

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Yeast Hybridization Technology

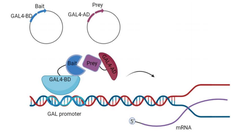
Unveiling the Complex World of Protein Interactions

www.omicsempower.com

About Y2H & Y1H

Yeast hybridization technology includes two main methods: yeast two-hybrid and yeast one-hybrid. Yeast two-hybrid technology is used for screening or identifying interactions between proteins, while yeast one-hybrid (Y1H) technology is used to study the interactions between proteins and specific DNA sequences.

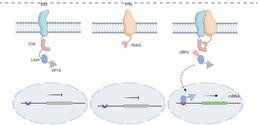
Principle of Yeast Hybridization Technology



Application:
Screening or identification for interacting proteins of non-transmembrane proteins.

Bait Vector: **pGBKT7**
Library or Prey Vector: **pGADT7**

- GAL4 system (or Nucleus system) Yeast Two-Hybrid -



Application:
Screening or identification for interacting proteins of transmembrane proteins.

Bait Vector: **pPR3-N**
Library or Prey Vector: **pBT3-N/pBT3-STE/pBT3-SUC**

- Split-ubiquitin system (or Membrane system) Yeast Two-Hybrid -

Application:
Screening and identification upstream regulatory proteins that bind to specific DNA.

Bait Vector: **pAbAi**
Library or Prey Vector: **pGADT7**

- GAL4 system (or Nucleus system) Yeast One-Hybrid -

Yeast Hybridization Technology Service Catalogue

Yeast Hybrid Technology Service

- **Yeast Hybrid cDNA Library Construction**
  - GAL4 (Nucleus) system Yeast Hybrid cDNA Library construction
  - Split-ubiquitin (Membrane) system Yeast Hybrid cDNA Library construction
- **Yeast Two-Hybrid Screening**
  - GAL4 (Nucleus) system Y2H Library Screening
  - Split-ubiquitin (Membrane) system Y2H Library Screening
- **Yeast One-Hybrid Screening**
- **Yeast Family Library Screening**
  - Rice TF Library Two-Hybrid Screening
  - Rice TF Library One-Hybrid Screening
  - Rice Ubiquitin E3 Library Two-Hybrid Screening
  - Rice TF_E3 Library Two-Hybrid Screening
  - Arabidopsis TF Library Two-Hybrid Screening
  - Arabidopsis TF Library Two-Hybrid Screening

Yeast Hybrid cDNA Library Construction Service

Library Construction Project Process

1. Prepare sample
2. Extract total RNA
3. cDNA reverse transcription
4. Synthesize second strand
5. Size fractionation of cDNA
6. Recombine with library vector
7. Extract library plasmids
8. Transform library plasmids into yeast Y187 (optional)
9. Library quality contral & delivery
10. Customer acceptance

- Yeast Hybrid cDNA Library Construction Project Process -

Library Product Advantages

Authentic Materials
We deliver the original library constructed using experimental materials provided by the customer

Reliable Quality
12 quality control steps to ensure library quality, supporting customer quality inspection and acceptance of libraries

Rich Experience
Over 200 published SCI project articles with a total impact factor of more than 1500

Worry-free After-sales Service
1-year free after-sales service

Delivery Contents of Library Construction Product

Product Names	Delivery Standards	Storage Conditions
Nuclear/Membrane System cDNA Library Plasmid	1 tube (>500 μg)	-20°C
Nuclear/Membrane System cDNA Library Glycerol Bacterial Suspension (E.coli)	3 tubes (1ml/tube)	-80°C
Yeast Working Solution Glycerol (optional)	>100 tubes (1ml/tube)	-80°C
Library Screening Vector Kit	1 set	-20°C
Library Screening Yeast Strain Kit	1 set	-80°C
Library Construction Project Report	1 electronic copy	N/A

Library Quality Standards

Library Parameters	Quality Standards
Library Capacity (E.coli)	≥1×10^7 cfu
Average Insert Size	≥1000 bp
Recombination Rate	≥95%

Library Sample Collection and Shipping Methods

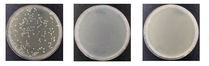
Fresh samples are snap-frozen in liquid nitrogen and shipped with sufficient dry ice.

Yeast Library Screening Services

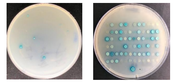
Library Screening Project Process

1.Bait vector construction

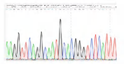
2.Bait Auto-activation test



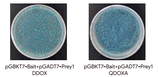
3.Library screening (primary screening-secondary screening)



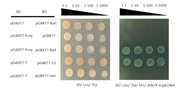
4.Sequencing of positive clones



5.Y2H assay(plate)



6.Y2H assay(spot)



- Nuclear System Yeast Two-Hybrid Library Screening Process -

Advantages of Library Screening Products

High transformation efficiency
Total number of transformants greater than 10^6 cfu

High interaction positivity rate
By one-to-one spreading & spotting verification, improve the positivity rate, averaging above 80%

Guaranteed experimental authenticity
the optional delivery of physical positive clones

Worry-free after-sales
Professional bioinformatics analysis team, with 1-year free after-sales service

Automated sequencing of positive clones
High-throughput plasmid extraction platform, with a success rate of positive clone sequencing higher than 95%

omics empower — *Your Science , Within Reach*

Delivery Contents of Library Screening Project

- Library Screening Project Report
- Bait Vector Constructed by the Company
- Positive Clones (Optional)

Rice/Arabidopsis Family Library Screening Services

In the field of yeast hybrid technology, Omics Empower adheres to the spirit of win-win cooperation. In 2018, we joined hands with Professor Chen Fan from the Institute of Genetics, Chinese Academy of Sciences, to build a rice transcription factor library. In the same year, we cooperated with Professor Qu Lijia from Peking University to promote the screening service of the Arabidopsis transcription factor library. In July 2022, we joined hands with Professor Ning Yuese from the Plant Protection Institute of the Chinese Academy of Agricultural Sciences to launch the rice ubiquitin E3 ORF library. All three family libraries are CDS-type libraries, and there is no need to repeat cloning after screening.

Rice Transcription Factor Library
- Gene count: **Over 1500**
- Family count: **63**
- Library form: **CDS (plasmid)**
- Applications: **Yeast two-hybrid, yeast one-hybrid**

Rice Ubiquitin E3 Library
- Gene count: **~1500**
- Family count: **7**
- Library form: **CDS (plasmid)**
- Applications: **Yeast two-hybrid**

Arabidopsis Transcription Factor Library
- Gene count: **Over 1500**
- Family count: **62**
- Library form: **CDS (plasmid)**
- Applications: **Yeast two-hybrid, yeast one-hybrid**

Product Advantages

- Strong collaboration between universities and enterprises, with original clone data sourced from **MSU, PlantTFDB, KOME, ABRC, and RBC,** ensuring authoritative data.
- Efficient screening, with a coverage rate of **98.94%** for the ubiquitin E3s family and over **80%** for transcription factor families.
- Simplified screening process, allowing direct acquisition of full-length CDS interacting genes without the need for repeated cloning validation.