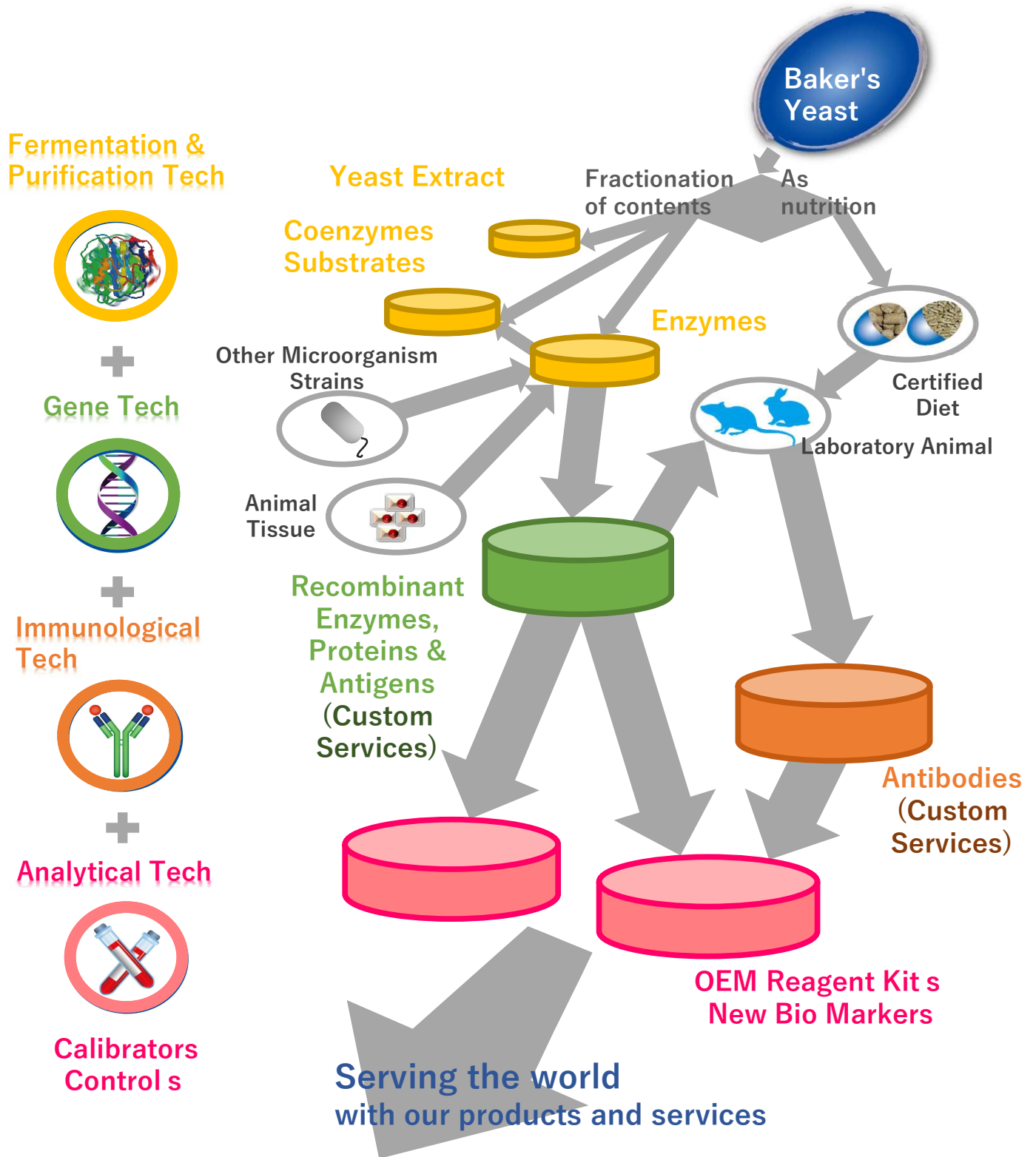


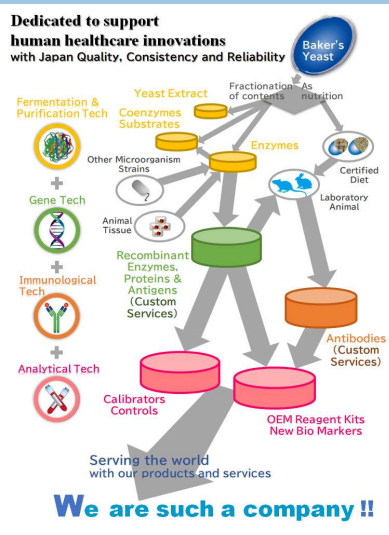
Who is OYC Bio?



We are such a company !!

OYC Biochemicals

for AST/ALT assay



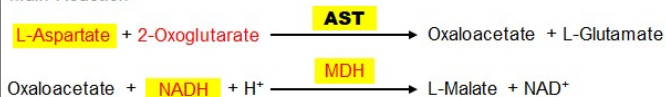
OYC's Biochemicals are the most suitable for the development and manufacturing of IVD reagents. All products have passed stringent product specification. We have been supplying variety of raw materials for AST/ALT assays in liver function tests based on our valuable customers' requests. We are very proud to inform you that we offer a wide range of those products for fitting your R&D concept of AST/ALT assays.

Assay Principle

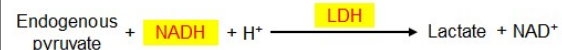
AST Aspartate transaminase

Liver function tests

Main Reaction



Elimination of pyruvate interference



ALT Alanine transaminase

Liver function tests



Major ingredients in the reagent are colored **red**.
OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for AST/ALT assay

Please contact us for the detailed product features.

rLDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 10 min) | Optimum pH | Optimum temp. | Km value (Pyruvate) | Km value (NADH) |
|------------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rLDH(CH) | 46757903 | 6.0-9.5 | ≤ 65°C | 7.0-7.5 | ≥ 37°C | 4.1 x 10 ⁻⁵ mol/L | 1.8 x 10 ⁻⁵ mol/L |
| rLDH(PH) | 46862903 | 5.5-8.0 | ≤ 55°C | 7.0-8.0 | 70°C | 6.5 x 10 ⁻⁵ mol/L | 1.8 x 10 ⁻⁵ mol/L |
| rLDH(RM) | 46764900 | 6.5-8.0 | ≤ 45°C | 6.0 | 50°C | 2.1 x 10 ⁻⁴ mol/L | 1.2 x 10 ⁻⁵ mol/L |
| rD-LDH(Bacteria) | 46762903 | 5.5-9.5 | ≤ 55°C | 7.0 | 45-50°C | 2.6 x 10 ⁻⁴ mol/L | 1.1 x 10 ⁻⁴ mol/L |
| rD-LDH(L) | 46867903 | 5.5-9.5 | ≤ 40°C | 6.5 | 25-30°C | 8.4 x 10 ⁻⁴ mol/L | 9.9 x 10 ⁻⁵ mol/L |

rMDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 15 min) | Optimum pH | Optimum temp. | Km value (Oxaloacetate) | Km value (NADH) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rMDH | 46756903 | 4.5-9.0 | ≤ 80°C | 5.5-8.0 | ≥ 37°C | 9.0 x 10 ⁻⁵ mol/L | 3.9 x 10 ⁻⁵ mol/L |

NADH

| Product Item | Catalog No. |
|--------------|-------------|
| NADH | 44320900 |

Aspartate

| Product Item | Catalog No. |
|--------------|---------------|
| L-Aspartate | AGF ASP-AJ001 |

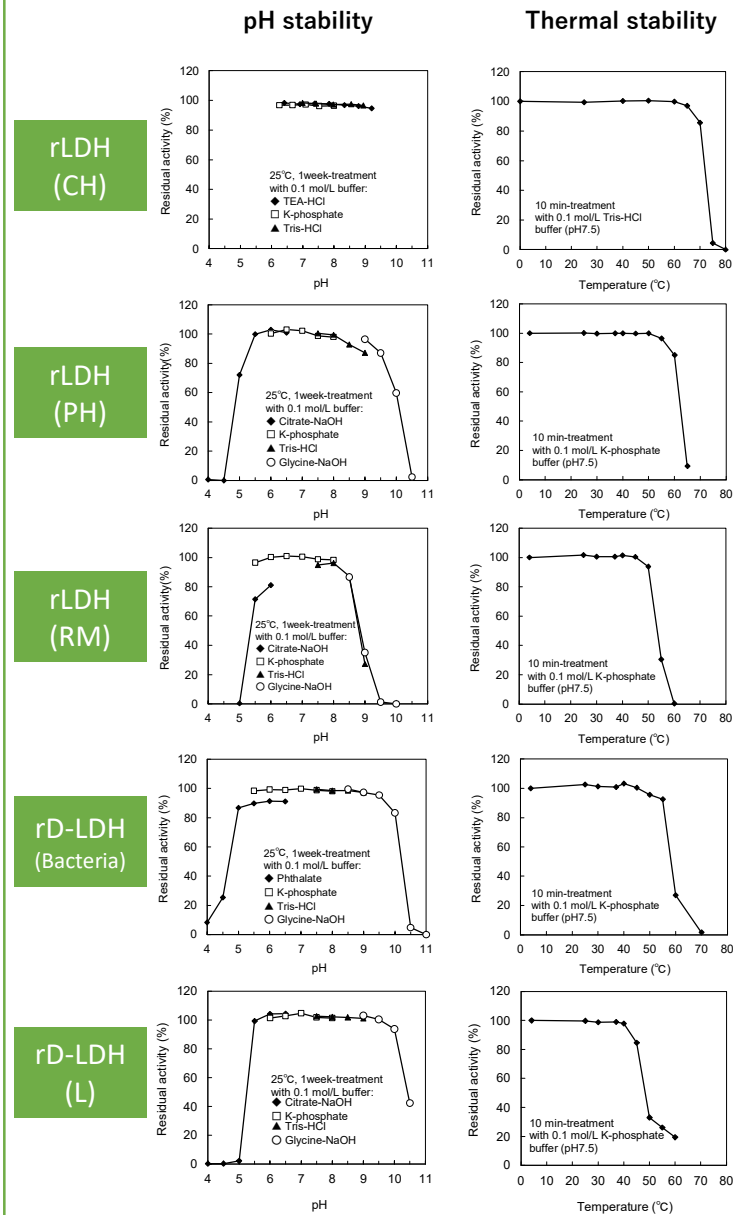
Alanine

| Product Item | Catalog No. |
|--------------|---------------|
| L-Alanine | AGF ALA-AJ001 |

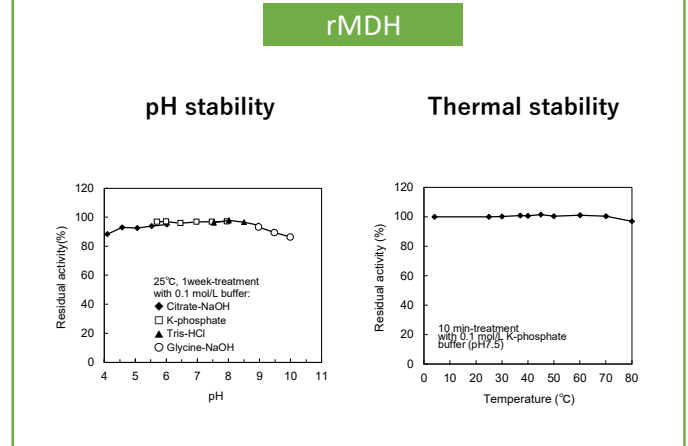
Control/Calibrator

| Product Item | Catalog No. |
|-------------------------|-------------------|
| rhAST | 46887903 |
| rhALT | 46896903 |
| Human Enzyme Calibrator | Please contact us |

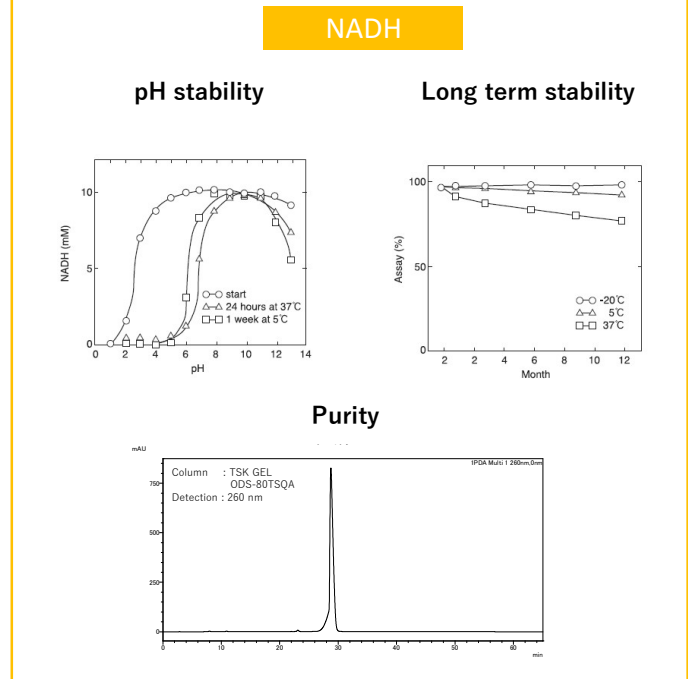
REFERENCE DATA -rLDHs



REFERENCE DATA -rMDH



REFERENCE DATA -NADH

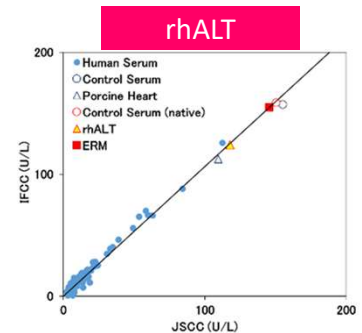
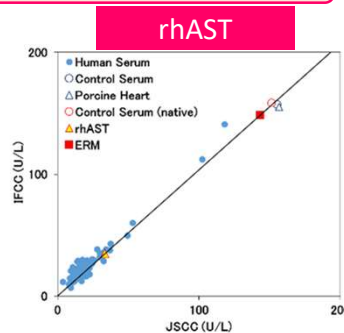


REFERENCE DATA -rhAST, rhALT

Commutability

OYC recombinant human enzymes (rhAST, rhALT), Human Serum, Control Serum, Porcine Heart, Control Serum (native) and ERM were analyzed by IFCC method at 37°C and JSCC method.

ERM : Japanese Enzyme Reference material
JSCC : Japan Society of Clinical Chemistry
IFCC : International Federation of Clinical Chemistry and Laboratory Medicine



OYC supports the development and manufacture of IVD reagents for our customers.



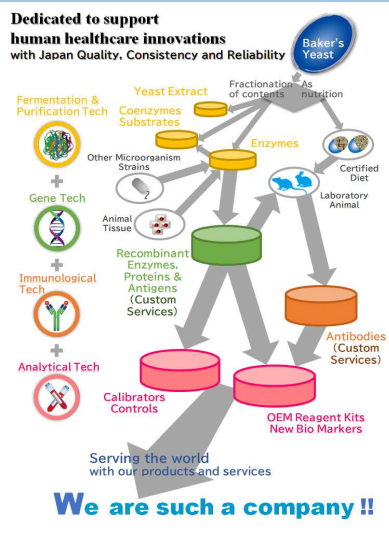
ORIENTAL YEAST CO.,LTD.

Please contact our sales representative or visit the following website.

<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for CK assay

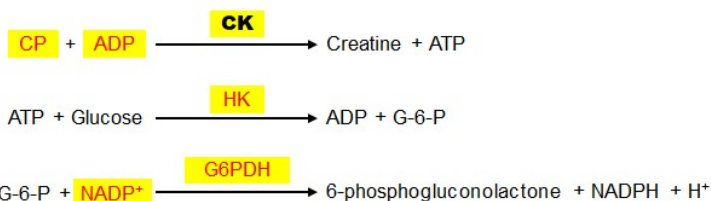


OYC's Biochemicals are the most suitable materials for the development and manufacturing (production) of IVD reagents. All products have passed through stringent product specifications. We have been supplying our customers a variety of raw materials for CK assays' including r6PGL as Linearity stabilizer / enhancer for the assay. Both of AP5A and AMP are as to eliminate AK interference as well. Would you like to try these combinations above to have something better?

Assay Principle

CK Creatine Kinase; Total CK; Creatine Phosphokinase; CPK

Cardiac tests



- Eliminating AK interference from sample by adding **AP5A** and **AMP**.
- Stabilizing linearity for the assay by adding **6PGL**.



Major ingredients in the reagent are colored **red**.
OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for CK assay

Please contact us for the detailed product features.

rHK

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 10 min) | Optimum pH | Optimum temp. | Km value (ATP) | Km value (Glucose) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rHK(Y) | 46763900 | 5.0-8.0 | ≤ 40°C | 7.5-9.0 | 50°C | 1.8 x 10 ⁻⁴ mol/L | 2.9 x 10 ⁻⁴ mol/L |

rG6PDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 30 min) | Optimum pH | Optimum temp. | Km value (G6P, NADP ⁺ -linked) | Km value (NADP ⁺) |
|---------------|-------------|-----------------------------|------------------------------------|------------|---------------|---|-------------------------------|
| rG6PDH(L)-43 | 46854903 | 5.0-9.0 | ≤ 37°C | 7.5 | 45°C | 1.4 x 10 ⁻⁴ mol/L | 1.2 x 10 ⁻⁵ mol/L |
| rG6PDH(L)-93* | 46860903 | | | | | | |

* Special for CK assay, of which has pre-added r6PGL.

r6PGL

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 10 min) | Optimum pH | Optimum temp. |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|
| r6PGL(L) | 46765900 | 5.0-9.5 | ≤ 50°C | 6.0 | 25-37°C |

NADP⁺

| Product Item | Catalog No. |
|--------------------------------------|-------------|
| β-NADP ⁺ | 44292900 |
| β-NADP ⁺ -K | 44310900 |
| β-NADP ⁺ -Na ₂ | 44300900 |

Substrates

| Product Item | Catalog No. |
|--------------|-------------|
| ADP | 45120900 |
| ADP-K | 45130900 |
| AMP-Na | 45110900 |
| AP5A-3Li | 45305000 |
| CP | 45180900 |

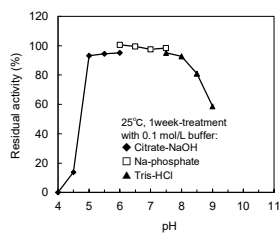
Control/Calibrator

| Product Item | Catalog No. |
|-------------------------|-------------------|
| rhCK-MB | 46905903 |
| rhCK-MM | 46906903 |
| Human Enzyme Calibrator | Please contact us |

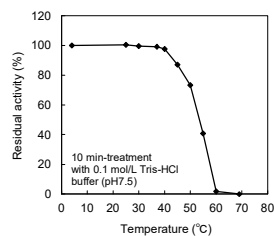
REFERENCE DATA -rHK

rHK (Y)

pH stability



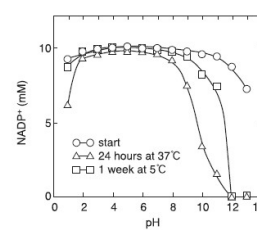
Thermal stability



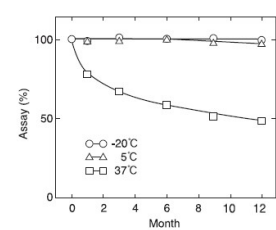
REFERENCE DATA -NADP⁺

NADP⁺-K

pH stability



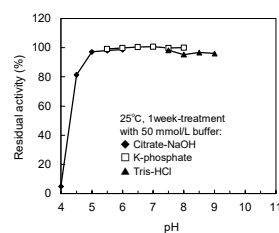
Long term stability



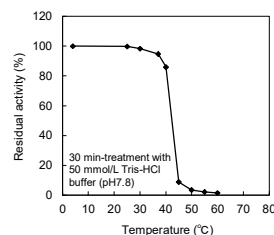
REFERENCE DATA -rG6PDH

rG6PDH (L)-43

pH stability



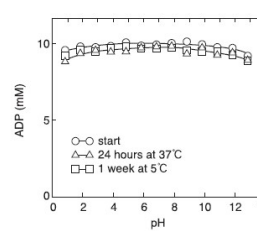
Thermal stability



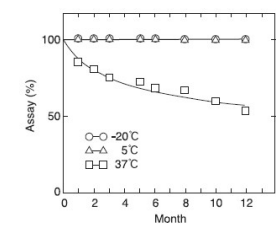
REFERENCE DATA -ADP

ADP

pH stability



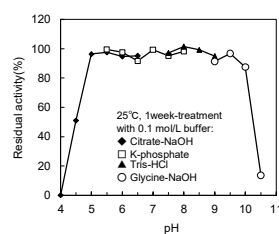
Long term stability



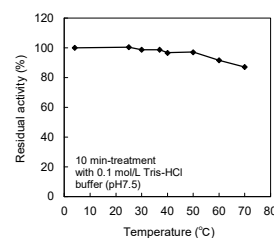
REFERENCE DATA -r6PGL

r6PGL (L)

pH stability



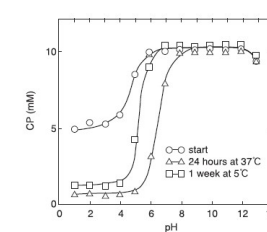
Thermal stability



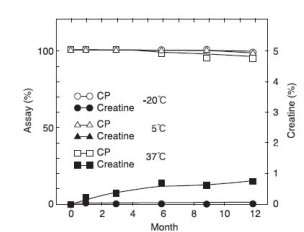
REFERENCE DATA -CP

CP

pH stability



Long term stability

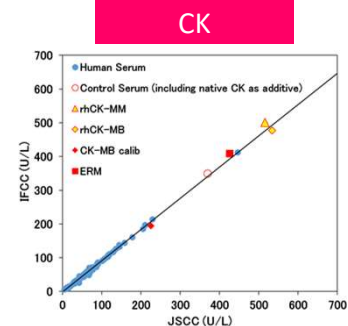


REFERENCE DATA -rhCK-MM, rhCK-MB

Commutability

OYC recombinant human enzymes (rhCK-MM, rhCK-MB), Human Serum, Control Serum (including native CK as additive), CK-MB calibrator and ERM were analyzed by IFCC method at 37°C and also JSCC method.

ERM : Enzyme Reference Material certified JCLLS
JSCC : Japan Society of Clinical Chemistry
IFCC : International Federation of Clinical Chemistry and Laboratory Medicine



OYC supports the development and manufacture of IVD reagents for our customers.



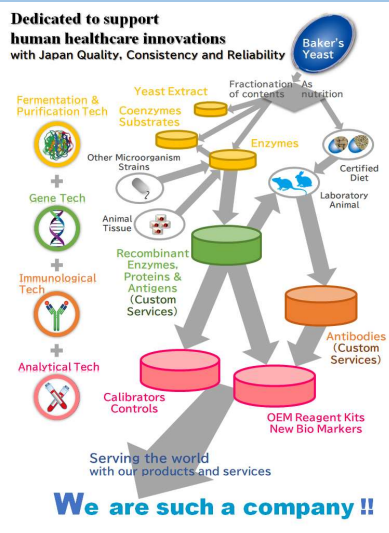
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Please contact our sales representative or visit the following website.

<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for CK-MB assay



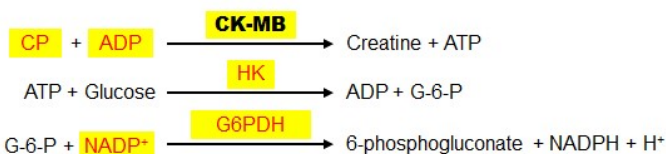
OYC's Biochemicals are the most suitable materials for the development and manufacture of IVD reagents. All products have passed through stringent product specifications. In addition to the raw materials (listed in published Vol. 3) for total CK reagent, here both of anti CK-M inhibiting antibody and r6PGDH are highlighted particularly for CK-MB assays. r6PGDH is an additional enzyme useful to amplify absorbance change as to meet the lowest detection limit. Would you like to try the excellent CK-MB reagents in combination with these materials?

Assay Principle

CK-MB Creatine Kinase-MB; CK MB; CPK MB

Cardiac tests

Eliminating CK-M activity by **CK-M Antibody** for CK-MB assay.



- Eliminating AK interference from sample by adding **AP5A** and **AMP**.
- Stabilizing linearity for the assay by adding **6PGL**.
- Improving sensitivity for the assay by adding **6PGDH**.



Major ingredients in the reagent are colored **red**.
OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for CK-MB assay

Please contact us for the detailed product features.

CHECK!

Please refer to "OYC IVD News Vol. 3" for detailed information on the main raw materials of CK reagents.

- **Enzymes** : rHK, rG6PDH, r6PGL
- **Coenzymes** : **NADP⁺**
- **Substrates** : **ADP, CP**

Special Products for CK/CK-MB assays

r6PGDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.0, 10 min) | Optimum pH | Optimum temp. | Km value (6PG) | Km value (NADP ⁺) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|-------------------------------|
| r6PGDH(Y) | 46861903 | 5.5-6.5 | ≤ 50°C | 6.8-7.3 | 50°C | 7.8 x 10 ⁻⁵ mol/L | 1.9 x 10 ⁻⁵ mol/L |

AK Inhibitor

| Product Item | Catalog No. |
|--------------|-------------|
| AMP-Na | 45110900 |
| AP5A-3Li | 45305000 |

Antibody to CK-M subunit

| Product Item | Catalog No. |
|----------------------|-------------|
| CK-MM-MCAmL(MX1)-12S | 47097900 |

REFERENCE DATA -r6PGDH

Reaction that improve sensitivity

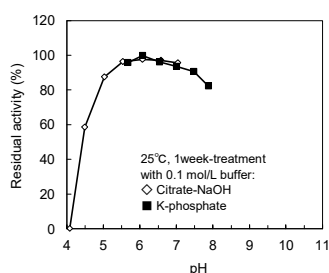
In samples with low CK-MB concentrations, the measuring signals are lower due to CK-M activity inhibition.

The addition of 6PGDH improves the sensitivity as amplifying resulted signal by two.

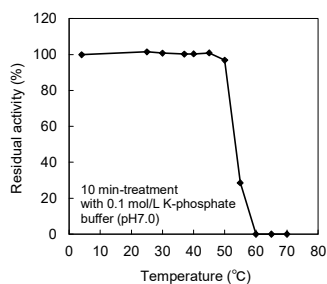


r6PGDH (Y)

pH stability



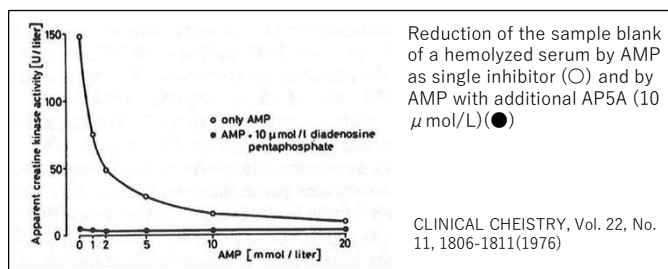
Thermal stability



REFERENCE DATA -AK inhibitor

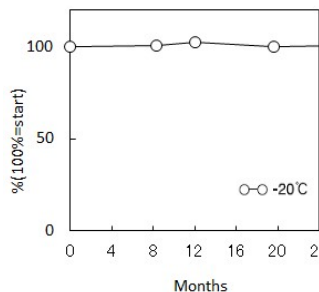
Eliminate AK interference

AMP is a well-known AK inhibitor but not sufficient enough by itself. Combining AMP with AP5A together is highly recommended as described below.



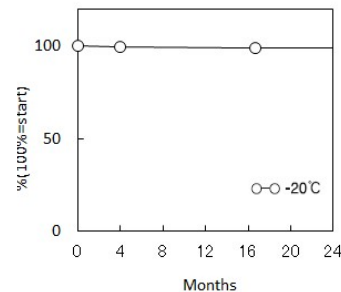
AMP-Na

Long term stability



AP5A-3Li

Long term stability



REFERENCE DATA -Antibody to CK-M subunit

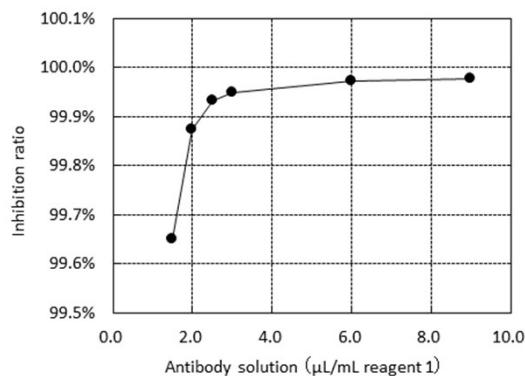
Eliminate CK-M activity

CK-MM-MCA (monoclonal antibody) binds to the CK-M subunit in serum, which inhibits the activity of the M subunit.

CK-MM-MCA

Inhibition ratio

Sample :
5000 U/L rCK-MM



OYC supports the development and manufacture of IVD reagents for our customers.



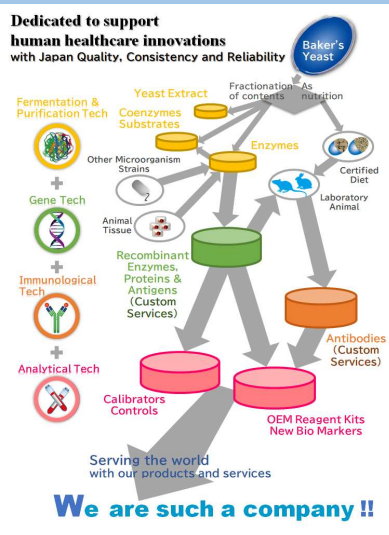
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Please contact our sales representative or visit the following website.

<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for Ammonia assay



OYC's Biochemicals are the most suitable for the development and manufacturing of IVD reagents. All products have passed stringent product specification. We supply a variety of raw materials for Ammonia assays in liver function tests based on our valuable customers' requests.

Would you like to get ammonia reagents that match your concept by combining our raw materials?

Assay Principle

Ammonia

Ammonia Plasma; NH₃

Liver function tests

NADPH-used system



NADH-used system



For NADH-used systems, eliminating endogenous pyruvate interference by adding **LDH**.



Major ingredients in the reagent are colored **red**. OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for Ammonia assay

For NADPH used system

rGIDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 10 min) | Optimum pH | Optimum temp. | Km value (2-Oxoglutarate) | Km value (NADPH) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rGIDH(Y) | 46747903 | 7.5-9.5 | ≤ 50°C | 8.5-9.0 | 37°C | 1.9 x 10 ⁻⁴ mol/L | 2.2 x 10 ⁻⁵ mol/L |

For NADH used system

rGIDH

Properties

| Product Item | Catalog No. | pH stability (37°C, 1 week) | Thermal stability (pH 7.8, 10 min) | Optimum pH | Optimum temp. | Km value (2-Oxoglutarate) | Km value (NADH) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rGIDH(NAD) | 46874903 | 7.5 | ≤ 60°C | 7.4-7.8 | 45°C | 3.0 x 10 ⁻³ mol/L | 1.7 x 10 ⁻⁴ mol/L |

rLDH

Please refer to "OYC IVD News Vol. 2" for detailed information.

| Product Item | Catalog No. |
|------------------|-------------|
| rLDH(CH) | 46757903 |
| rLDH(PH) | 46862903 |
| rLDH(RM) | 46764900 |
| rD-LDH(Bacteria) | 46762903 |
| rD-LDH(L) | 46867903 |

Please contact us for the detailed product features.

For NADPH used system

NADPH

| Product Item | Catalog No. |
|--------------|-------------|
| NADPH | 44332900 |

For NADH used system

NADH

| Product Item | Catalog No. |
|--------------|-------------|
| NADH | 44320900 |

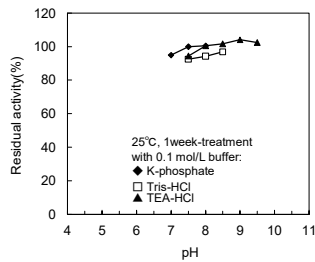
REFERENCE DATA -rGIDHs

OYC has two types of rGIDH adapted the NADPH or NADH used system.

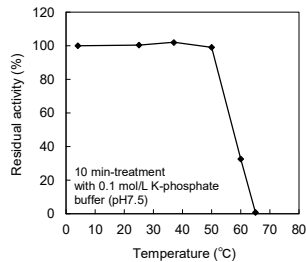
■ For NADPH used system

rGIDH(Y)

pH stability



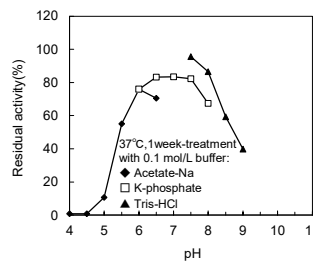
Thermal stability



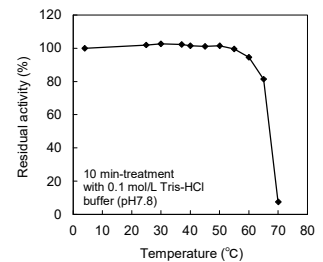
■ For NADH used system

rGIDH(NAD)

pH stability



Thermal stability



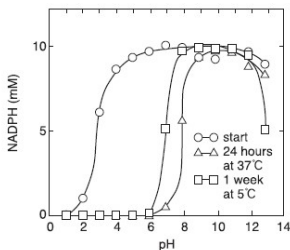
CHECK!

rGIDH is also useful as a raw material for **Urea Nitrogen (UN)** reagents. Details will be introduced in the next news, "OYC IVD News Vol.6".

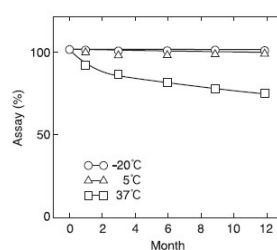
REFERENCE DATA -NADPH

NADPH

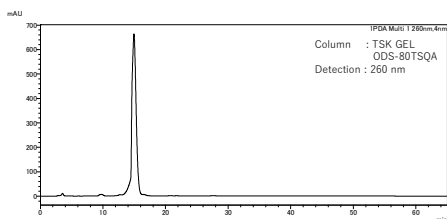
pH stability



Long term stability



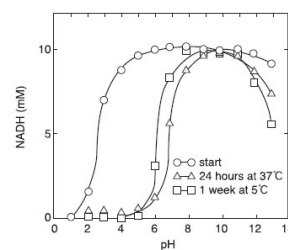
Purity



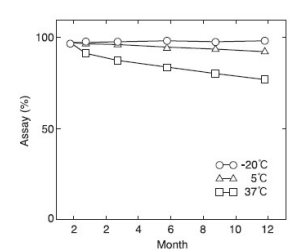
REFERENCE DATA -NADH

NADH

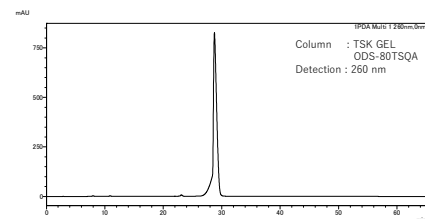
pH stability



Long term stability



Purity



OYC supports the development and manufacture of IVD reagents for our customers.



ORIENTAL YEAST CO.,LTD.

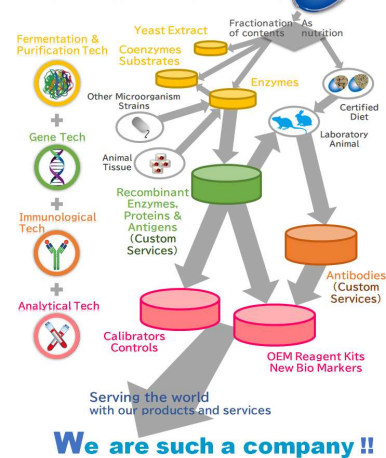
Please contact our sales representative or visit the following website.

<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for Urea Nitrogen assay

Dedicated to support human healthcare innovations with Japan Quality, Consistency and Reliability



OYC's Biochemicals are the most suitable for the development and manufacture of IVD reagents. In addition to rGIDH, NADPH and NADH (listed in published Vol. 5) required for the measurement of ammonia, this news focus here on rUrease and rICDH as raw materials for Urea Nitrogen (UN) assays. rICDH is an enzyme useful for maintaining and extending the measurement range by regenerating the coenzyme consumed in the ammonia scavenging reaction. Would you like to try a better UN reagent with these combinations?

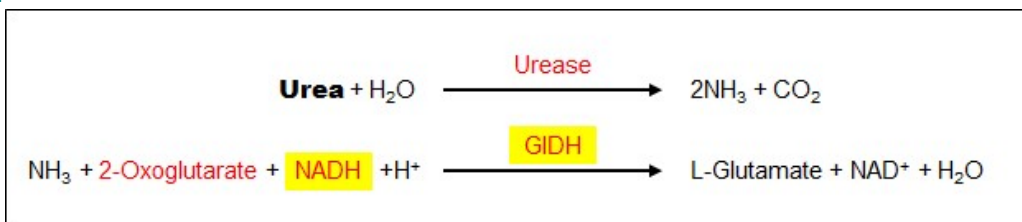
Assay Principle

Urea Nitrogen, UN

Renal function tests

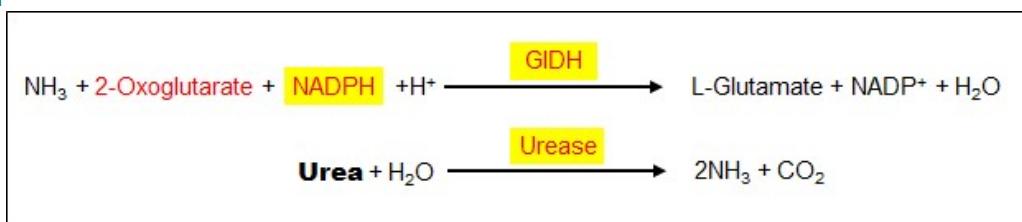
Urease · GIDH method

(GIDH-based kinetic assay)



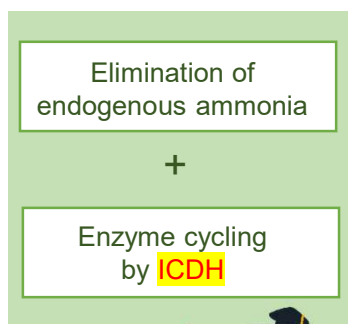
Urease · GIDH method

(Urease-based kinetic assay)



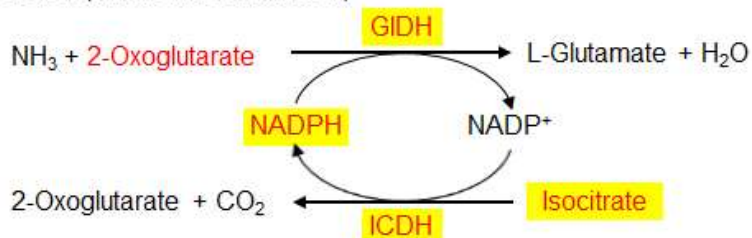
Urease · GIDH · ICDH method

(Urease-based kinetic assay)

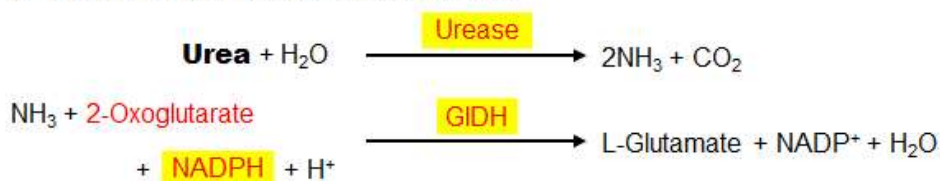


Major ingredients in the reagent are colored red. OYC's available product is highlighted in yellow.

1st Reaction (Ammonia Elimination)



2nd Reaction (Urea Nitrogen Measurement)



OYC's PRODUCTS for UN assay

CHECK!

Please refer to "OYC IVD News Vol. 5" for detailed information on rGIDHs and Coenzymes.

- **Enzymes** : rGIDH(Y)
rGIDH(NAD)
- **Coenzymes** : NADPH, NADH

Special Products for UN assays



rUrease

Properties

| Product Item | Catalog No. | pH stability (37°C, 1 week) | Thermal stability (pH 8.0, 10 min) | Optimum pH | Optimum temp. | Km value (Urea) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|
| rUrease | 46753900 | 8.0-9.5 | ≤ 65°C | 6.0 | ≥ 37°C | 1.9 x 10 ⁻¹ mol/L |



rICDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 8.0, 10 min) | Optimum pH | Optimum temp. | Km value (Isocitrate) | Km value (NADP ⁺) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|-------------------------------|
| rICDH(Taq) | 46745903 | 6.5-8.5 | ≤ 65°C | 8.5 | ≥ 37°C | 6.0 x 10 ⁻⁵ mol/L | 5.5 x 10 ⁻⁵ mol/L |

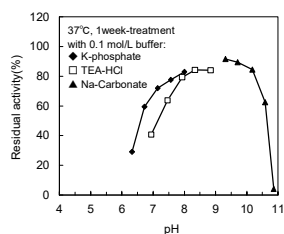
REFERENCE DATA -rUrease

Most suited to Urease-based UN kinetic assay

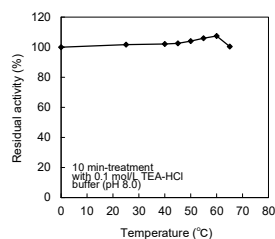
- Unique enzyme (Designed mutant)
- Higher Km for Urea than that of Urease derived from Jack bean
- Ready to direct use (not require the addition of boric acid (Urease inhibitor))

rUrease

pH stability



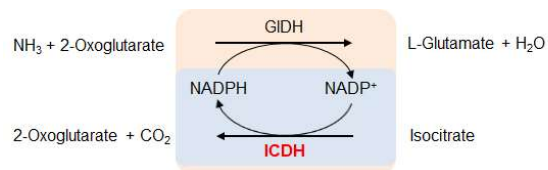
Thermal stability



REFERENCE DATA -rICDH

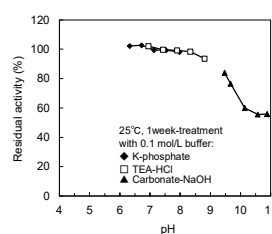
NADPH regeneration reaction by ICDH

- Ensure the measurement range of UN reagents
- Improve the liquid stability of reagents

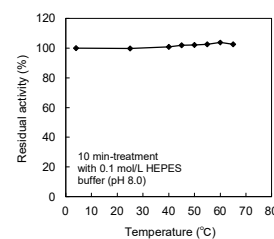


rICDH(Taq)

pH stability



Thermal stability



OYC supports the development and manufacture of IVD reagents for our customers.



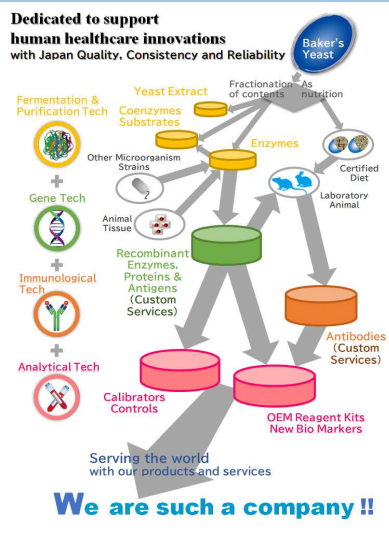
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<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

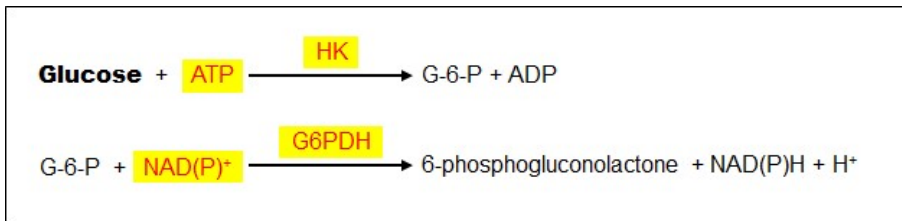
for Glucose assay



OYC's Biochemicals are the most suitable materials for the development and manufacture of IVD reagents. All products have passed through stringent product specifications. We supply our customers with various raw materials for Glucose (Blood Sugar) reagents for the HK-G6PDH method. NADP⁺ is an ideal coenzyme to erase matrix interference from clinical samples. Would you like to combine OYC raw materials to create an optimal glucose reagent?

Assay Principle

Glucose Fasting Blood Glucose (FBG), Blood Sugar, Fasting Blood Sugar (FBS), Fasting Plasma Glucose (FPG) Diabetes tests



NADP⁺ is preferred for the assay rather than NAD⁺.



Major ingredients in the reagent are colored red. OYC's available product is highlighted in yellow.

OYC can supply the following products in bulk!

OYC's PRODUCTS for Glucose assay

rHK

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.5, 10 min) | Optimum pH | Optimum temp. | Km value (ATP) | Km value (Glucose) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rHK(Y) | 46763900 | 5.0-8.0 | ≤ 40°C | 7.5-9.0 | 50°C | 1.8 x 10 ⁻⁴ mol/L | 2.9 x 10 ⁻⁴ mol/L |

rG6PDH

Properties

| Product Item | Catalog No. | pH stability (25°C, 1 week) | Thermal stability (pH 7.8, 30 min) | Optimum pH | Optimum temp. | Km value (G6P, NADP ⁺ -linked) | Km value (NADP ⁺) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|---|-------------------------------|
| rG6PDH(L)-43 | 46854903 | 5.0-9.0 | ≤ 37°C | 7.5 | 45°C | 1.4 x 10 ⁻⁴ mol/L | 1.2 x 10 ⁻⁵ mol/L |

NADP⁺

| Product Item | Catalog No. |
|---------------------|-------------|
| β-NADP ⁺ | 44292900 |

NAD⁺

| Product Item | Catalog No. |
|--------------------|-------------|
| β-NAD ⁺ | 44065900 |

ATP

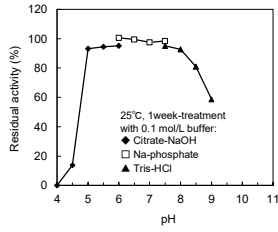
| Product Item | Catalog No. |
|--------------|-------------|
| ATP-II | 45147900 |

* Please contact us for the detailed product features.

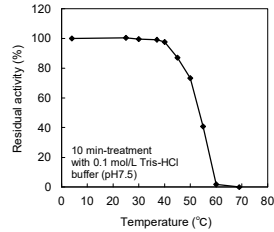
REFERENCE DATA -rHK

rHK (Y)

pH stability



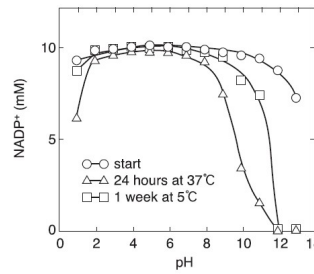
Thermal stability



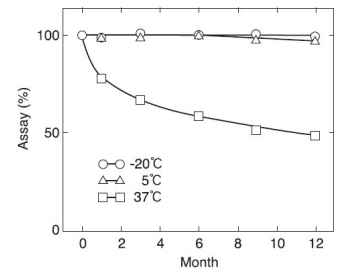
REFERENCE DATA -NADP⁺

NADP⁺

pH stability



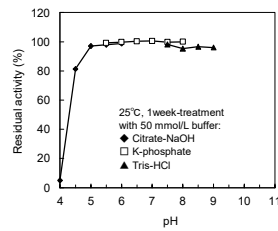
Long term stability



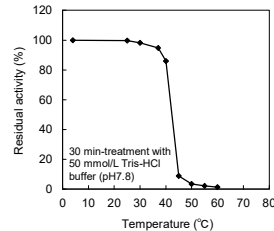
REFERENCE DATA -rG6PDH

rG6PDH (L)-43

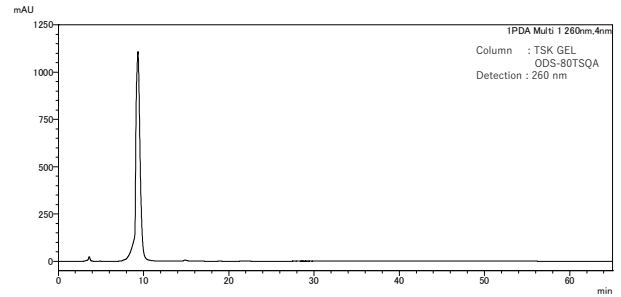
pH stability



Thermal stability



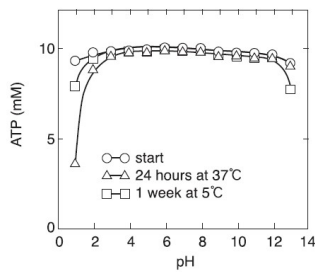
Purity



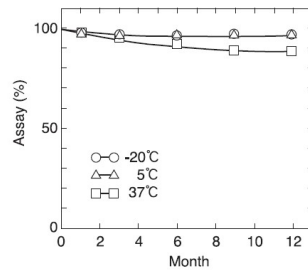
REFERENCE DATA -ATP

ATP-II

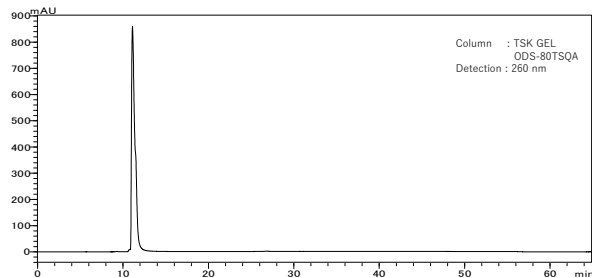
pH stability



Long term stability



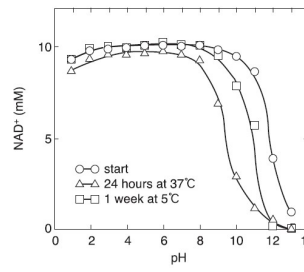
Purity



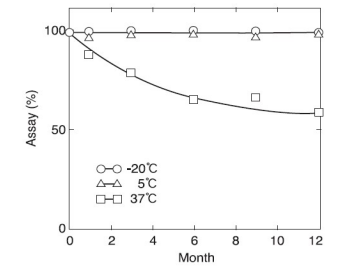
REFERENCE DATA -NAD⁺

NAD⁺

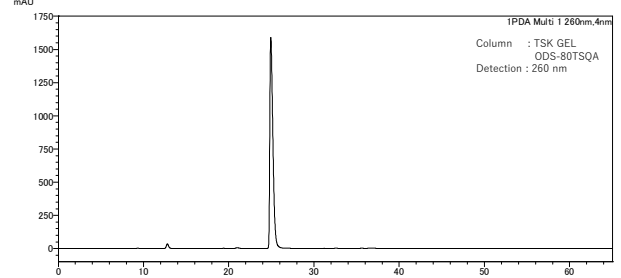
pH stability



Long term stability



Purity



OYC supports the development and manufacture of IVD reagents for our customers.



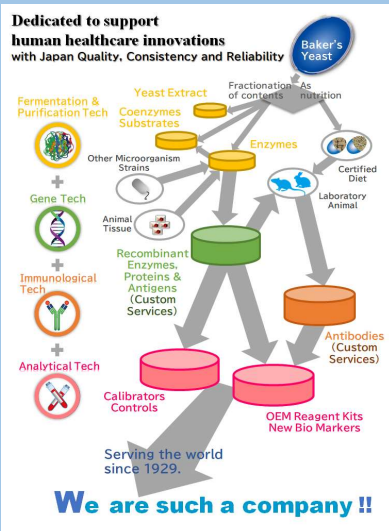
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<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for Triglycerides assay



OYC's Biochemicals are the most suitable materials for the development and manufacture of IVD reagents. All products have passed through stringent product specifications.

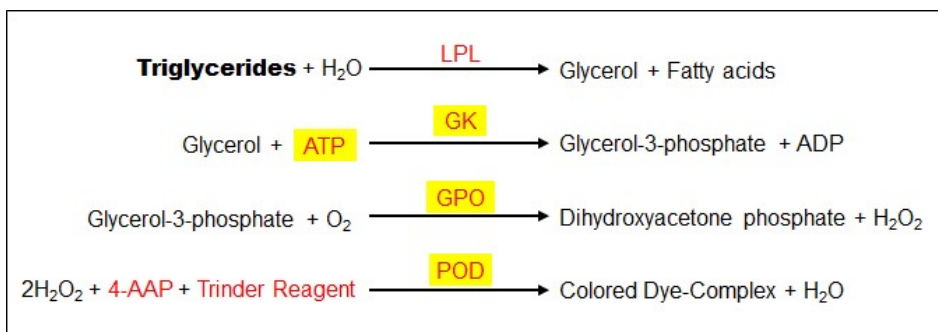
We supply our customers a variety of Enzymes and Substrate for Triglycerides (TG) assay.

Would you like to try OYC raw materials for the preparation of TG reagents?

Assay Principle

Triglycerides TG, TRIG

Lipid metabolism disorders (hyperlipidaemias) tests



Use **GK** and **GPO**, which are stable and have high affinity for the substrate.



Major ingredients in the reagent are colored **red**. OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for TG assay

rGK

Properties

| Product Item | Catalog No. | pH stability (30°C, 1 week) | Thermal stability (pH 7.0, 10 min) | Optimum pH | Optimum temp. | Km value (ATP) | Km value (Glycerol) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rGK | 46898903 | 5.5-8.5 | ≤ 65°C | 9.5 | ≥ 50°C | 6.0 x 10 ⁻⁵ mol/L | 8.2 x 10 ⁻⁵ mol/L |

rGPO

Properties

| Product Item | Catalog No. | pH stability (30°C, 1 week) | Thermal stability (pH 6.5, 10 min) | Optimum pH | Optimum temp. | Km value (DL-Glycerol 3-phosphate) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------------|
| rGPO | 46899903 | 6.0-6.5 | ≤ 45°C | 6.0-7.0 | 40°C | 1.5 x 10 ⁻¹ mol/L |

POD (HRP)

| Product Item | Catalog No. |
|--------------|-------------|
| POD | 46260903 |

ATP

| Product Item | Catalog No. |
|--------------|-------------|
| ATP-II | 45147900 |

➤ Please contact us for the detailed product features.

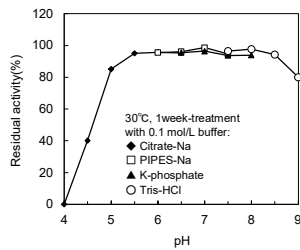
REFERENCE DATA -rGK

rGK with features suitable for TG assay (GK-GPO).

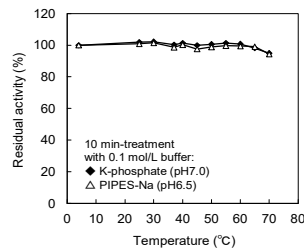
OYC recombinant GK (Glycerol Kinase) is purified to high purity. rGK has the advantage of Thermal stability and low Km for glycerol.

rGK

pH stability



Thermal stability



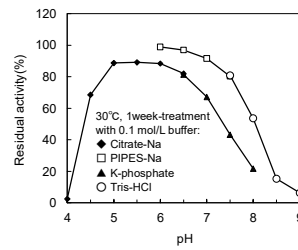
REFERENCE DATA -rGPO

rGPO with features suitable for TG assay (GK-GPO).

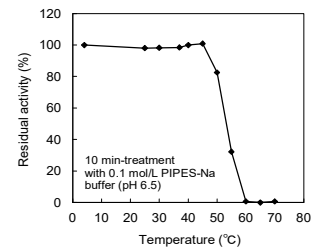
OYC recombinant GPO (Glycerol 3-Phosphate Oxidase) is purified to high purity. rGPO has the advantage of Thermal stability.

rGPO

pH stability



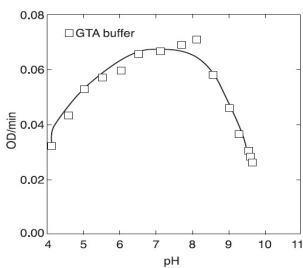
Thermal stability



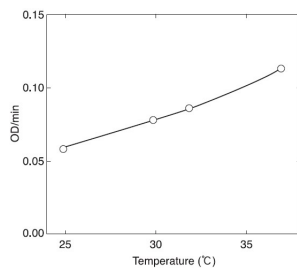
REFERENCE DATA -POD

POD

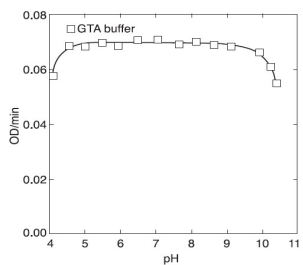
pH activity



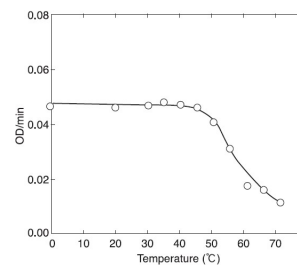
Thermal activity



pH stability



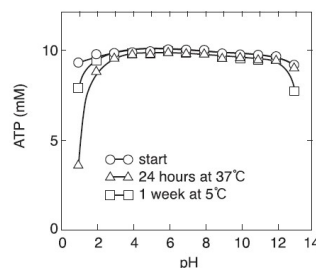
Thermal stability



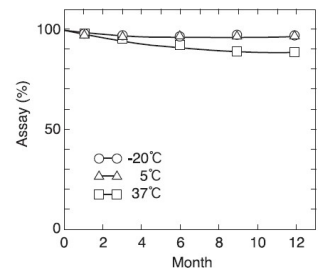
REFERENCE DATA -ATP

ATP-II

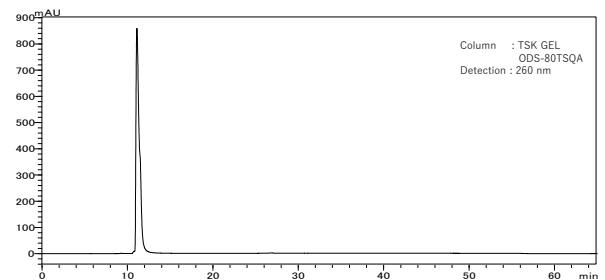
pH stability



Long term stability



Purity



OYC supports the development and manufacture of IVD reagents for our customers.



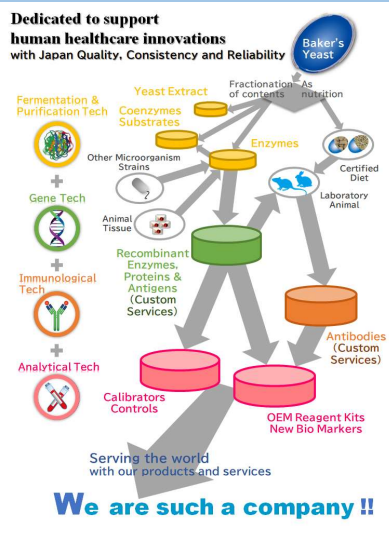
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<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for Uric Acid (UA) assay



OYC's Biochemicals are the most suitable raw materials for the development and manufacture of IVD reagents. All products have passed through strict specifications at our Quality Assurance.

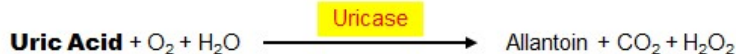
We are very glad to announce you that our new recombinant Uricase as Cat. No. 46786903 and Cat. No. 46785903 for uric acid (UA) assay.

Now there are several rUricase for you to have an option to choose for your suitable reagent component. Would you please try our current and new rUricase up to your requirement?

Assay Principle

Uric Acid Serum Urate, UA

Kidney function tests



Please see Fig. 2 on the next page.

rUricase (Cat. No. 46786903) provide interesting data in a certain formulation of UA reagent. I know you like it!



Major ingredients in the reagent are colored **red**.
OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for UA assay

NEW!

rUricase from Microorganism

| Product Item | Catalog No. | pH stability (30°C, 2 weeks) | Thermal stability (pH 8.5, 10 min) | Optimum pH | Optimum temp. | Km for Urate (PIPES pH 7.0) | Km for Urate (Borate pH 8.5) |
|--------------|-------------|------------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rUricase | 46786903 | 8.0-10.0 | ≤ 65°C | 8.5 | 50°C | 1.1 x 10 ⁻⁵ mol/L | 1.9 x 10 ⁻⁵ mol/L |

- High Performance Uricase for UA assay.

NEW!

rUricase from Microorganism

| Product Item | Catalog No. | pH stability (30°C, 2 weeks) | Thermal stability (pH 8.5, 10 min) | Optimum pH | Optimum temp. | Km for Urate (PIPES pH 7.0) | Km for Urate (Borate pH 8.5) |
|--------------|-------------|------------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rUricase | 46785903 | 8.0-10.0 | ≤ 65°C | 8.5 | 50°C | 4.8 x 10 ⁻⁵ mol/L | 1.9 x 10 ⁻⁵ mol/L |

rUricase (Y) from Yeast

| Product Item | Catalog No. | pH stability (30°C, 2 weeks) | Thermal stability (pH 8.5, 10 min) | Optimum pH | Optimum temp. | Km for Urate (PIPES pH 7.0) | Km for Urate (Borate pH 8.5) |
|--------------|-------------|------------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rUricase (Y) | 46767900 | 8.0-10.0 | ≤ 65°C | 8.5 | 45°C | 5.7 x 10 ⁻⁵ mol/L | 2.6 x 10 ⁻⁵ mol/L |

POD from Horseradish roots

| Product Item | Catalog No. |
|--------------|-------------|
| POD | 46260903 |

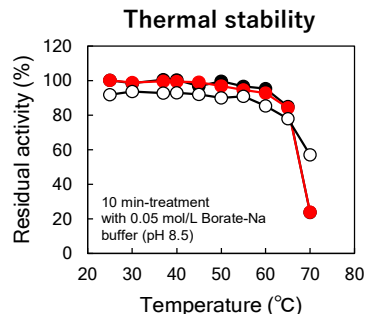
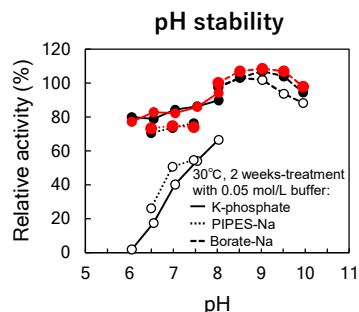
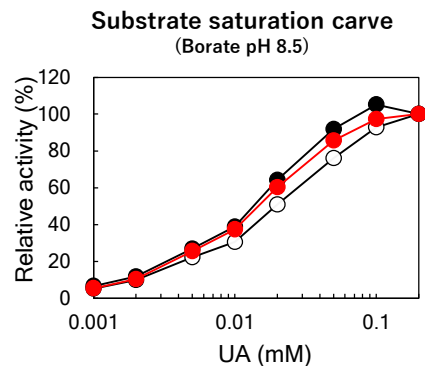
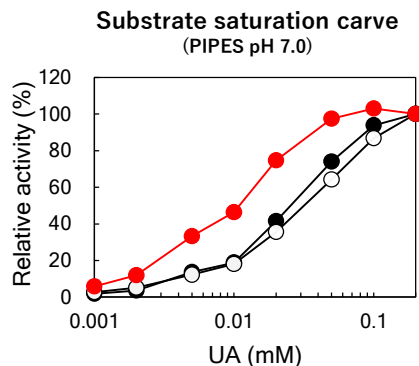
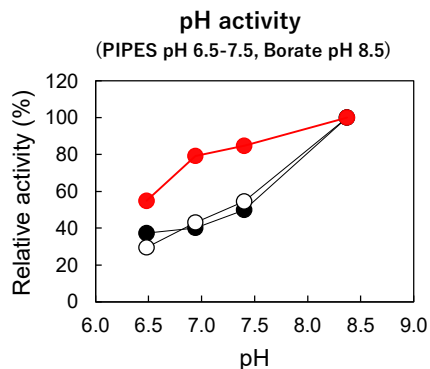
* Each enzyme properties are preliminary data.

➤ Please contact us for the detailed product features.

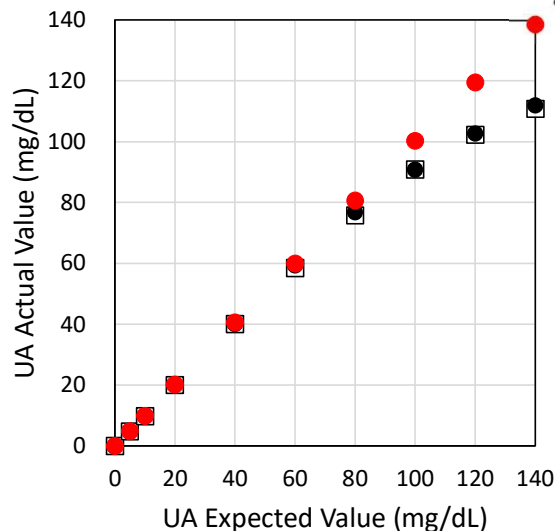
REFERENCE DATA -rUricase

■ Fig. 1 Basic properties

We can offer variation of rUricase at the different properties such as pH activity in the neutral range and Km for urate.



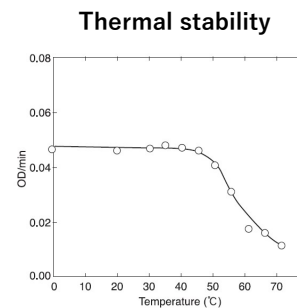
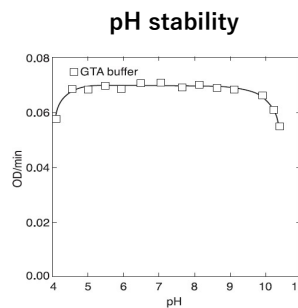
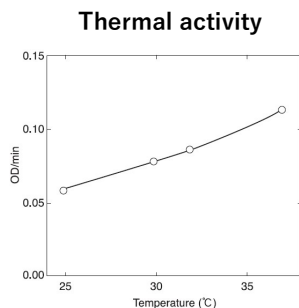
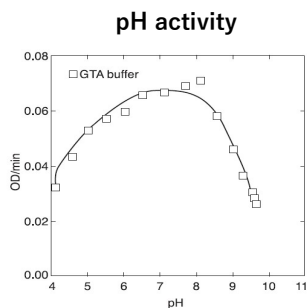
■ Fig. 2 Linearity on UA reagent



Please try our new rUricase (Cat. No. 46786903) which shows superior linearity in the one of UA reagents. However, please be careful that it depends on your reagent formulation.

- rUricase (Cat. No. 46786903)
- rUricase (Cat. No. 46785903)
- rUricase(Y) (Cat. No. 46767900)
- Uricase (Competitive product from microorganism)

REFERENCE DATA -POD



OYC supports the development and manufacture of IVD reagents for our customers.



ORIENTAL YEAST CO.,LTD.

Please contact our sales representative or visit the following website.

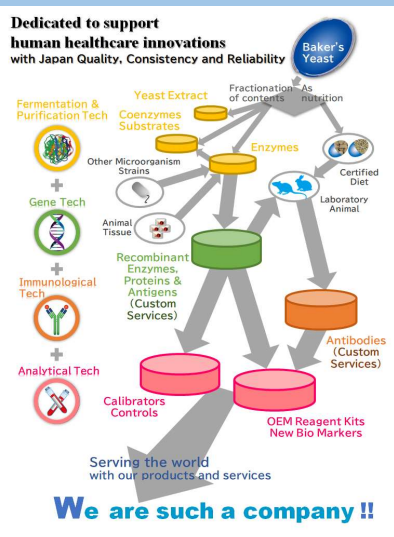
<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for Cholinesterase assay

Cholinesterase (ChE) assay is the important marker as one of the liver function tests. Its assay is also valuable for the diagnosis and treatment using ChE inhibitors and organophosphate poisoning. ChE is measured by two kinds of major methods such as chemical (colorimetric) and enzymatic methods. In Japan, the p-hydroxybenzoyl choline (pHBC) enzymatic method is approved as standard methods by JSCC (Japanese Society of Clinical Chemistry) since it allows measurement by molar extinction coefficient and has superior linearity.

OYC supplies a variety of raw materials for ChE JSCC method. Please try our products for ChE assay.



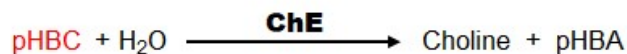
Assay Principle

Cholinesterase ChE, ChS

Liver function tests

■ pHBC method

Main Reaction



Elimination of side reaction



PCO eliminates the PCA produced in the main reaction, preventing side reactions. For details, see the next page.



Major ingredients in the reagent are colored **red**. OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for ChE assay

rpHBH *from Microorganism*

| Product Item | Catalog No. | pH stability (4°C, 2 weeks) | Thermal stability (pH 8.0, 15 min) | Optimum pH | Optimum temp. | Km value (p-Hydroxybenzoate) | Km value (NADPH) |
|--------------|-------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| rpHBH | 46853903 | 5.5-7.5 | ≤ 30°C | 7.0-7.5 | 37-40°C | 2.1 x 10 ⁻⁵ mol/L | 2.5 x 10 ⁻⁴ mol/L |

rPCO *from Microorganism*

| Product Item | Catalog No. | pH stability (11°C, 3 weeks) | Thermal stability (pH 7.5, 15 min) | Optimum pH | Optimum temp. | Km value (Protocatechuate) |
|--------------|-------------|------------------------------|------------------------------------|------------|---------------|------------------------------|
| rPCO | 46852904 | 5.5-9.5 | ≤ 55°C | 9.0 | 65°C | 2.8 x 10 ⁻⁵ mol/L |

NADPH

| Product Item | Catalog No. |
|--------------|-------------|
| NADPH | 44332900 |

Control/Calibrator

| Product Item | Status |
|--------------|----------------|
| rhChE | In development |

➤ Please contact us for the detailed product features.

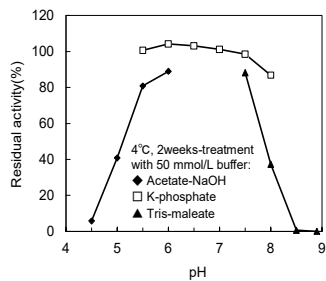
REFERENCE DATA -rpHBH

Features of pHBC method

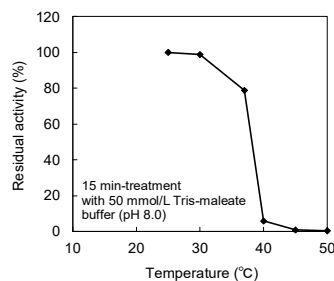
- Possible to measure by molar extinction coefficient.
- Superior linearity in ChE assay.
- Less susceptible to biological pigments due to UV external photometry.

rpHBH

pH stability



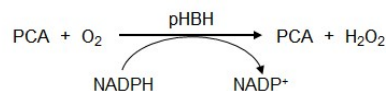
Thermal stability



REFERENCE DATA -rPCO

Elimination of side reaction of pHBH

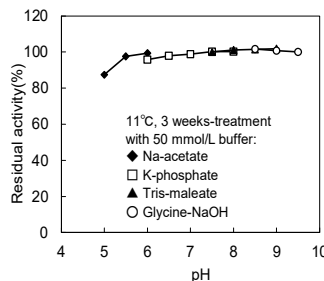
pHBH also reacts with PCA as a side reaction which causes errors in pHBH assay results (see below).



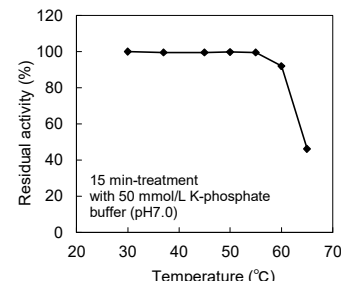
PCO eliminates PCA faster than pHBH which leads to accurate ChE assay.

rPCO

pH stability



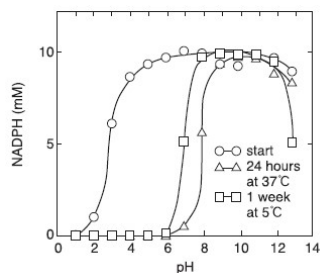
Thermal stability



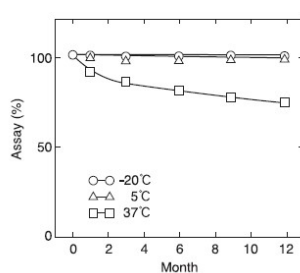
REFERENCE DATA -NADPH

NADPH

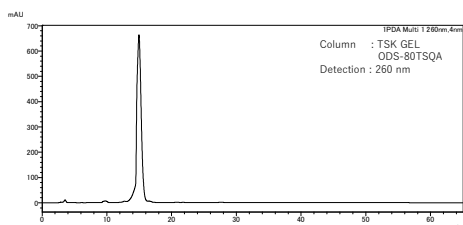
pH stability



Long term stability



Purity



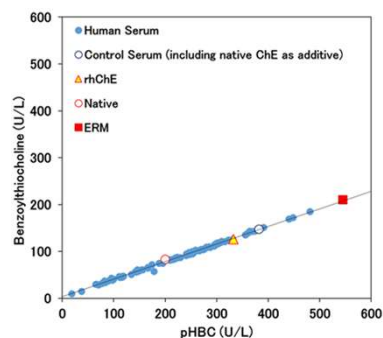
REFERENCE DATA -rhChE

Commutability

OYC recombinant human enzyme (rhChE), Human Serum, Control Serum (including native ChE as additive), Native and ERM were analyzed by pHBC* method and benzoylthiocholine* method.

*Substrate for measuring ChE activity

rhChE



ERM : Japanese Enzyme Reference Material

OYC supports the development and manufacture of IVD reagents for our customers.



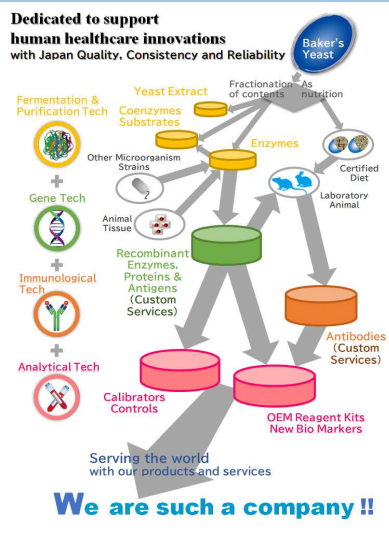
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<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Biochemicals

for TBA assay



Total Bile Acids (TBA) is a highly sensitive marker that can be used to analyze the early stages of liver dysfunction. Especially in China, TBA assay as part of the liver function test panel has been performed for early detection of liver diseases. In addition, the determination of serum TBA is useful as a common diagnostic test for liver function in veterinary animals.

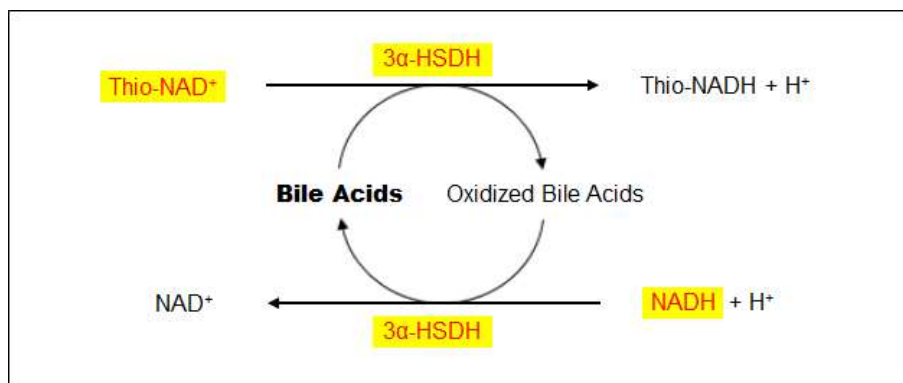
OYC supplies raw materials for TBA reagents by enzyme cycling method to create high sensitive assay. Would you like to combine our products to create an optimal TBA reagent?

Assay Principle

TBA Total Bile Acids

Liver function tests

Enzyme Cycling Method



The enzyme cycling reaction utilizing **3α-HSDH** enables accurate and rapid determination of trace amounts of total bile acids.



Major ingredients in the reagent are colored **red**. OYC's available product is highlighted in **yellow**.

OYC can supply the following products in bulk!

OYC's PRODUCTS for TBA assay

r3α-HSDH from Microorganism

| Product Item | Status | pH stability (25°C, 1 week) | Thermal stability (pH 7.0, 10 min) | Optimum pH | Optimum temp. | Km value (Androsterone) | Km value (NAD ⁺) |
|--------------|----------------|-----------------------------|------------------------------------|------------|---------------|------------------------------|------------------------------|
| r3α-HSDH | In development | 6.4-8.1 | ≤ 50°C | ≥ 10.0 | ≥ 50°C | 1.4 x 10 ⁻⁵ mol/L | 5.2 x 10 ⁻⁵ mol/L |

Thio-NAD⁺

| Product Item | Catalog No. |
|-----------------------|-------------|
| Thio-NAD ⁺ | 44104900 |

NADH

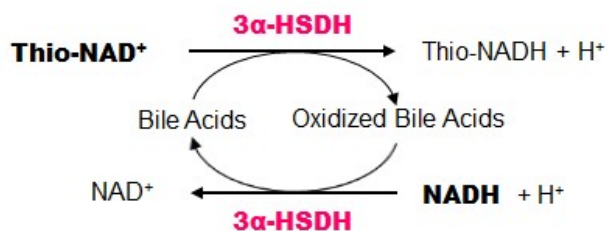
| Product Item | Catalog No. |
|--------------|-------------|
| NADH | 44320900 |

➤ Please contact us for the detailed product features.

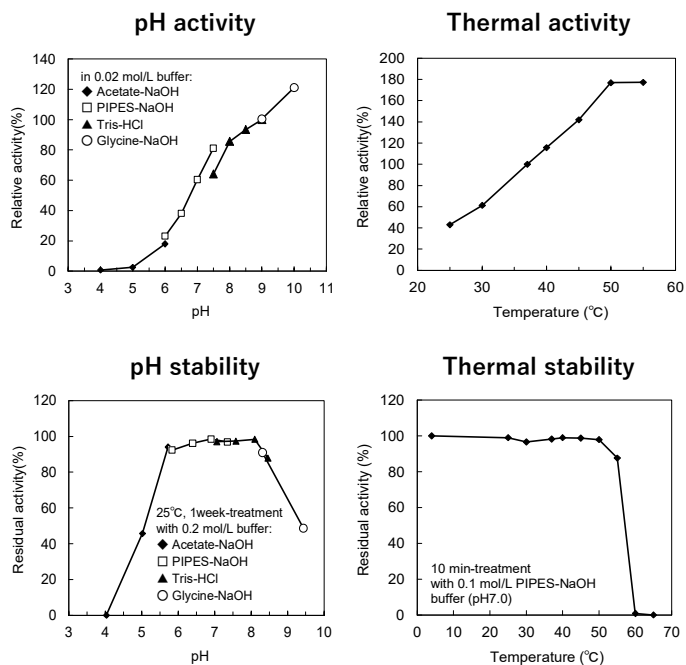
REFERENCE DATA -r3α-HSDH

Highly sensitive assay using 3α-HSDH

The enzyme cycling reaction by pairing enzyme (3α-HSDH) and coenzymes (Thio-NAD⁺/NADH) enables a significant signal amplification, and leads to a much higher detection sensitivity of the assay.

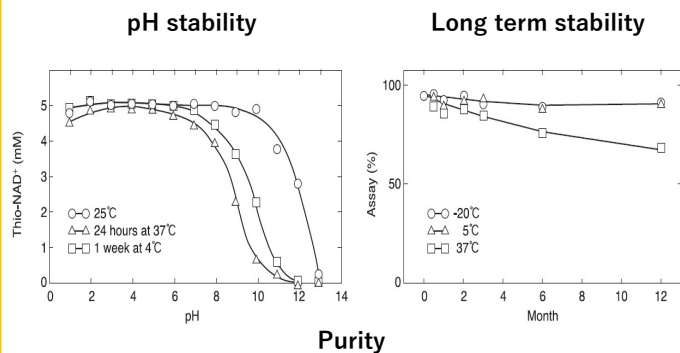


r3α-HSDH

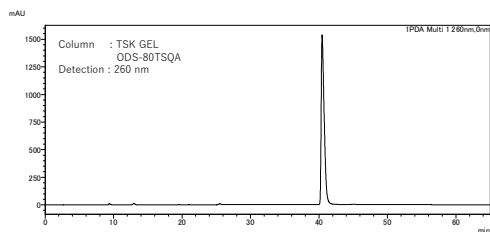


REFERENCE DATA -Thio-NAD⁺

Thio-NAD⁺

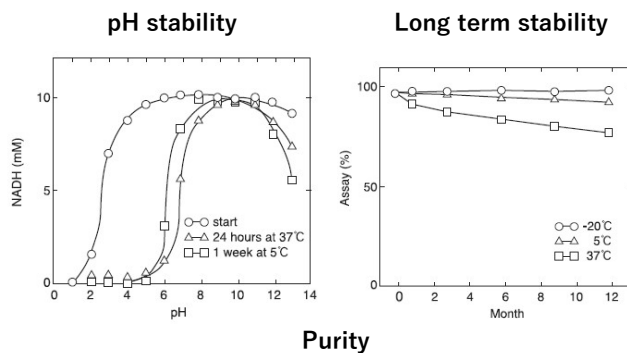


Purity

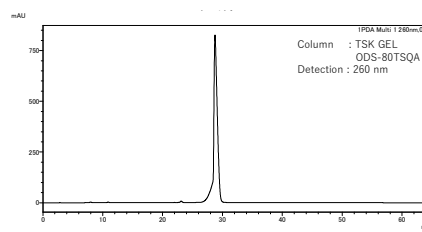


REFERENCE DATA -NADH

NADH



Purity



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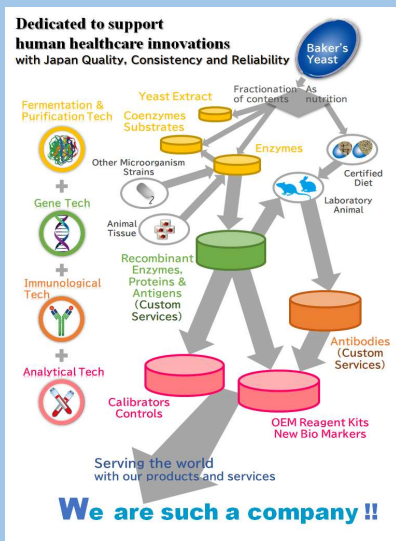
ORIENTAL YEAST CO.,LTD.

Please contact our sales representative or visit the following website.

<https://www.oyc.co.jp/en/inquiry/index.html>

OYC Immunologicals

**Contributing human healthcare
by high quality products for IVD reagents!**



Oriental Yeast Co., Ltd. (OYC) has a long history of developing and producing Immunological products such as antigens, antibodies, calibrators and custom products to supply IVD manufactures worldwide. We, as a reliable partner, are real manufacturer to produce valuable bulk products to fit the needs of worldwide IVD requirements. We would like to introduce our immunological products with a history in this OYC IVD News. We are always very glad to support you to develop high quality IVD immunological reagents.

We are strong in IVD immune market by 4 reasons !

1. Certified Lab Animal Diets & Higher Quality Lab Mice and Rabbits

OYC is a pioneer to develop and produce **high quality of certified laboratory animal diets** for both academia and pharmaceutical industry market under the spirit of **“safe and secure” since 1951** in Japan. Our certified diets also enable a stable supply and higher quality of laboratory animals such as SPF mice and rabbits and so on, which also contribute to our Immuno products.



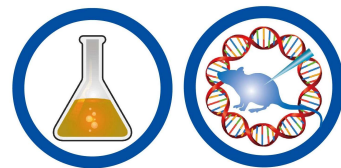
2. Fine state of art Recombinant & Immunizing Techs



Our **Gene Techs** always help us supply stable and **immune pure grade Antigens**. Our **Immunizing Techs** along with **high grade animals and diets** lead to a positive consequences on developing and producing higher quality of **Antibodies** for our IVD customers.

3. Long experience of Custom Services from A to Z

We keep challenging ourselves to offer custom services to develop and produce IVD Immune products **from recombinant proteins to antibodies**. We are available to make not only small scale, but also large bulk scale upon your requirements. Based on our long experience of our custom service, it can be your second lab and also factory. Please try our custom services as your partner.



4. Strict Quality Assurance

Through our experiences working with many worldwide IVD manufacturers, we have been learning their individual requirement for each product. We always tried to meet those requirements by face to face meetings as much as possible. Our goal is to support your R&D and production of IVD reagents based on a **high level of quality assurance**.



IMMUNOLOGICALS

| Application | Test Item | Product Antigens | Antibodies |
|------------------|----------------------|------------------|---|
| Inflammation | CRP | rCRP | CRP-IgG (rabbit polyclonal) CRP-MCA (mouse monoclonal) |
| Kidney disorders | Beta-2-Microglobulin | rB2M | B2M-IgG (rabbit polyclonal) |
| | Cystatine-C | rCys-C | Cystatin-C-IgG (rabbit polyclonal) |
| Heart attack | CK | rCK-MM, rCK-MB | CK-MM-MCA (mouse monoclonal) |
| | Myoglobin | rMb | In development |

| Application | Product Native Enzymes | Recombinant Protein | |
|-------------|------------------------|---------------------|---------------|
| Immunoassay | Labeling & Detection | ALP, POD | rStreptavidin |
| | Interference Scavenger | scavenger-ALP | |

Please refer to "IVD News Biochemicals Vol.3 and Vol.4".

✓ Details will be introduced in the future news.

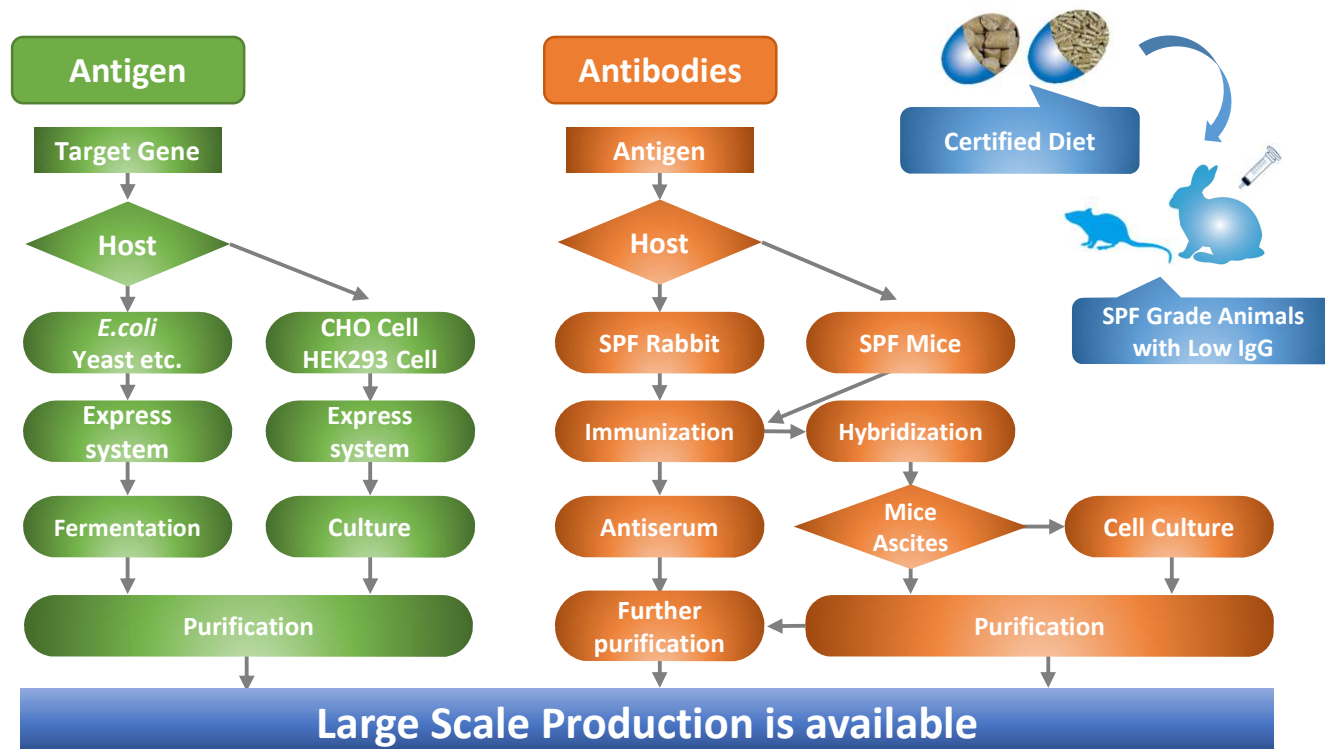
CUSTOM SERVICE

- Expression of Recombinant Protein (Antigens)
- Development of Monoclonal & Polyclonal Antibody
- Scale-up production

➤ For more information on custom services, please contact us.

Custom Antigen & Antibody Development Services (CAAD)

OYC offers a full suite of high quality custom services to develop and produce antigens and antibodies to meet your requirements.



OYC supports the development and manufacture of IVD reagents for our customers.

OYC Immunologicals

Interference Scavenger for Immunoassay



In the R&D of diagnostic immunoassays, the elimination of immunoassay interferences is important to ensure high quality performance. Patient samples sometimes include heterophilic antibodies such as Rheumatoid factor (Rf), Human Anti Mouse Antibodies (HAMA) and so on to interfere with clinical assays, which leads to false assay results because of those cross-reactions with reagent components.

OYC presents “SCAVENGERS” as raw materials that eliminate such matrix interference.

Would you like to try our “SCAVENGERS” to construct reagents with high measurement accuracy?

For improved precision and accuracy in immunodiagnostics

Immunoassay interferences

Immunoassay interferences caused by sample-derived materials can affect the accuracy of the assay results (false positives or false negatives).

- Antibody Interference
Rf and HAMA can cause interference in immunoassay.
- Detection Interference
Cross-reactions between alkaline phosphatase (ALP) for enzyme conjugate and heterophilic antibodies in samples can cause interference in immunoassays.

Interferences Scavenger for Immunoassays

Optimal Scavenger Tech improves precision and accuracy by eliminating the interference in immunoassays.

| Interferences type | Interference substances | Scavengers |
|--------------------|--|-------------------------------|
| Antibody | Rf | Rabbit IgG Rabbit IgG plus |
| | HAMA | Mouse Serum Mouse IgG |
| Detection | Heterophilic antibodies interacting with ALP | Scavenger ALP |

HOT UNIQUE PRODUCT “Scavenger ALP”

- In collaboration with various Japanese immunodiagnostic reagent manufacturers, we have developed “Scavenger ALP” to include a certain variation of proteins to eliminate interference of immunological assay against enzyme label ALP.
- This interference was generally caused by the compatibility of the reagent components with the individual patient sample. Through our experience, our “Scavenger ALP” was effective worldwide for our customers. Please try it to give a solution for your usage!

PRODUCT INFORMATION

Scavenger ALP from Calf intestine

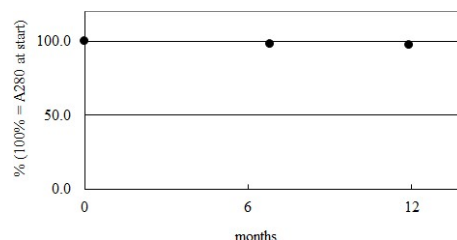
| Product Item | Catalog No. |
|---------------|-------------|
| Scavenger ALP | 47814900 |

- Protein contents (≥ 5 mg/mL)
- ALP activity (≤ 0.005 U/mg protein)
- Product form : Liquid

We selected a wide range of fractions to have scavenger capability from raw material, which are effective due to the matching of reagent components with patient samples. This product guarantees only the protein content and its stability. Please carefully try several lots compatible with your reagents and QC panels.



Stability data

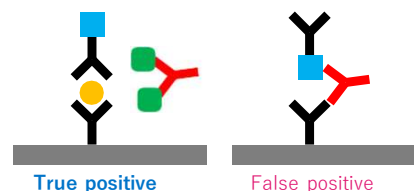
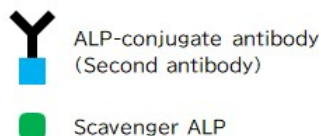
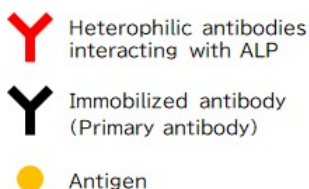


*The protein content is measured after filter filtration.

ESTIMATED APPLICATION

Scavenger ALP added to the assay conjugate eliminates the heterophilic interference caused by human samples.

- Reduction of background noise.
- Suppression of false positives and false negatives.



REFERENCE

- Yuriko Egashira, *et al.*, (2019) *Scientific Reports*. 9, 12359.
- Anu S Maharjan, *et al.*, (2019) *Practical Laboratory Medicine* 17, e00131.

RELATED PRODUCTS

ALP for immunoassays to have good match with our Scavenger ALP ALP5000

ALP5000 (ALP-H) from Calf intestine

| Product Item | Catalog No. |
|--------------|-------------|
| ALP5000 | 47785955 |

- Specific activity : > 5000 U/mg protein
- Purity(HPLC) : $\geq 97\%$

ALP2500 (ALP-L) from Calf intestine

| Product Item | Catalog No. |
|--------------|-------------|
| ALP2500 | 47825924 |

- Specific activity : > 2500 U/mg protein
- Purity(HPLC) : $\geq 97\%$

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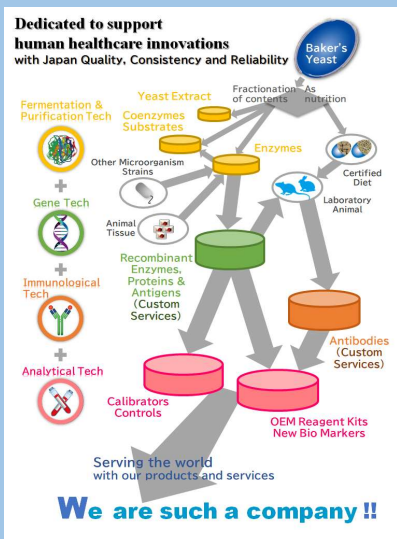
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OYC Immunologicals

Recombinant Streptavidin



Streptavidin, as one of the components of immunoassays, is useful for immobilizing to solid phase and labeling with enzymes.

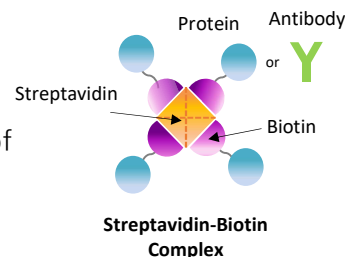
OYC recombinant Streptavidin is developed as a suitable tool to develop and produce diagnostic and also research test kits by passing stringent product specifications to ensure high biotin affinity.

Why do not you try our Streptavidin for your test kits to create higher sensitivity and also easy to construct your ones? Free of charge sample is always available for your evaluation!

For highly sensitive assays in immunodiagnostics

What's Streptavidin?

- Streptavidin is a tetrameric protein to bind biotin.
- Streptavidin-biotin high binding is known as one of the most stable noncovalent interactions and is stably maintained over a wide range of temperature, pH and denaturing agent.

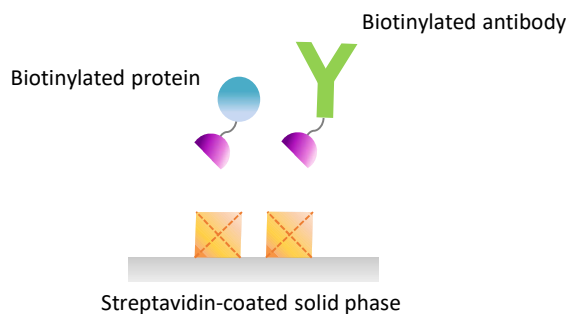


Application for Immunoassays

Streptavidin/Biotin system has been widely used in the field of biotechnology such as immobilization and labeling applied for diagnostics and research test kits. Especially in immunochemical assays, it enables the development of a highly sensitive detection system.

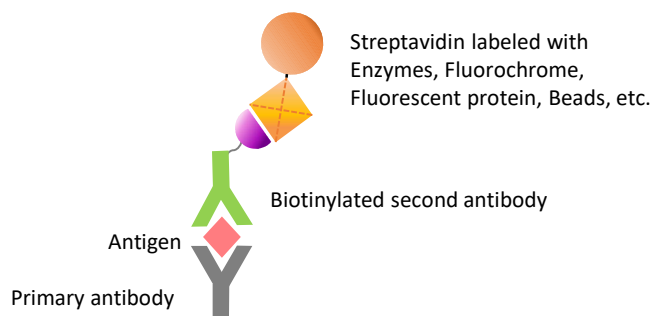
Easy immobilization on solid phases

Use for coating of solid phases such as microplates, beads, microarrays and so on.



Universal detection system by labeling

Use in universal immunological detection systems due to the strong affinity between streptavidin labeled with enzymes or fluorescent substrates and biotinylated proteins or antibodies.



PRODUCT INFORMATION

rStreptavidin

| | |
|---------------------------------|------------------------------|
| Type | Core |
| Product Item | rSA-C |
| Source | <i>Streptomyces avidinii</i> |
| Molecular Weight ^{*1} | 13 kDa |
| Specific Activity ^{*2} | ≥ 17 Units/mg |
| Product Form | Lyophilized powder |
| Storage Condition | Below -20°C |

*1 SDS-PAGE

*2 One unit will bind 1.0 μg biotin

- Highly purified recombinant protein expressed by *E. coli*.
- High quality product with minimized lot-to-lot variation.
- Capable of large-scale production in bulk quantities.
- Available in core and full-length of streptavidin to match customer's application.

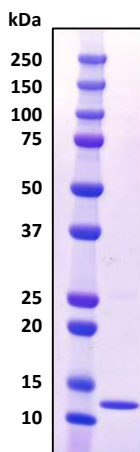


Note: These products are just developed at our R&D Lab so that the specifications may be changed in future. Please contact us for the detailed product information.

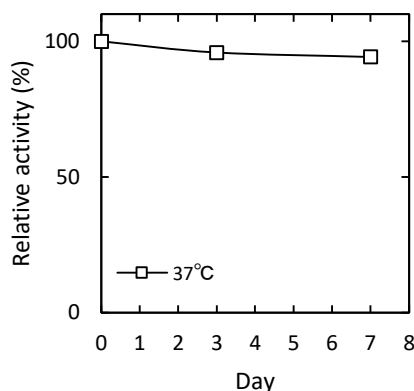
REFERENCE DATA

rSA-C

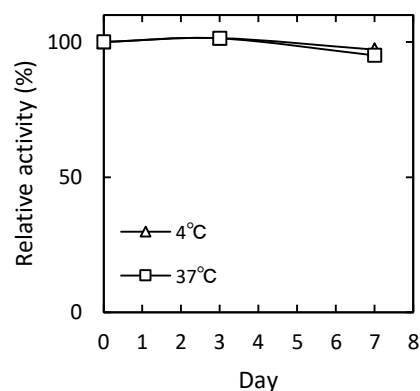
Purity (SDS-PAGE, reduced)



Powder Stability



Reconstituted Stability



RELATED PRODUCTS

Label enzymes suitable for use with Streptavidin

ALP5000 (ALP-H) from Calf intestine

| Product Item | Catalog No. |
|--------------|-------------|
| ALP5000 | 47785955 |

- Specific activity : > 5000 U/mg protein
- Purity(HPLC) : ≥ 97%

ALP2500 (ALP-L) from Calf intestine

| Product Item | Catalog No. |
|--------------|-------------|
| ALP2500 | 47825924 |

- Specific activity : > 2500 U/mg protein
- Purity(HPLC) : ≥ 97%

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Biochemicals

| Application | Product Item (Enzymes) | (Coenzymes / Substrates) |
|--------------------|----------------------------|---------------------------|
| ALT/AST | rLDH, rD-LDH, rMDH | NADH |
| AMY | r α -Glucosidase | - |
| Ammonia | rGIDH, rLDH, rD-LDH | NADH, NADPH |
| Bicarbonate | rMDH | APADH, NADH / PEP |
| BUN/UUN | rGIDH, rICDH, rUrease | NADPH |
| Cholinesterase | rpHBH, rPCO | NADPH |
| Creatine Kinase | rG6PDH, rHK, r6PGL | NADP / ADP, AMP, AP5A, CP |
| Creatine Kinase-MB | rG6PDH, rHK, r6PGL, r6PGDH | NADP / ADP, AMP, AP5A, CP |
| Glucose | rG6PDH, rHK | NAD, NADP / ATP |
| Total Bile Acid | r3 α -HSDH | Thio-NAD |
| Triglyceride | rGK, rGPO, POD | ATP |
| Uric Acid | POD, rUricase | - |

Immunologicals

| Application | Product Item (Antigens) | (Antibodies) |
|----------------------|-------------------------|---|
| Beta-2-Microglobulin | rB2M | B2M-IgG (rabbit polyclonal) |
| CK | rCK-MM, rCK-MB | CK-MM-MCA (mouse monoclonal) |
| CRP | rCRP | CRP-IgG (rabbit polyclonal) CRP-MCA (mouse monoclonal) |
| Cystatine-C | rCys-C | Cystatin-C-IgG (rabbit polyclonal) |
| Myoglobin | rMb | - |

| Application | Product Item (Enzymes) | (Protein) |
|----------------------|-------------------------|---------------|
| Labeling & Detection | ALP, scavenger-ALP, POD | rStreptavidin |

Calibrators/Controls

| Application | Product Item (Calibrator/Control) |
|---------------------|--|
| HDL/LDL Cholesterol | HDL/LDL-OY Calibrator (1 mL) |
| Human Enzymes | rALT, rAST, rALP, rLDH, rS-AMY, rP-AMY, rCK-MM, rCK-MB, rGGT, rLIP Calibrators / Controls |
| Linearity Control | Accustabilis Chem High (Custom) |
| Multiple Control | Accustabilis Chem 1, Accustabilis Chem 2 (Custom) |
| CRP | CRP Calibrator Set CRP Control-H/L |
| Cystatine-C | Cys-C Calibrator Set Cys-C Control-H/L |
| Immunology Control | Accustabilis Immun 1/2 (Custom) |

OEM Reagent Kits

| Application | Product Item (OEM Reagent) |
|-----------------|----------------------------|
| Creatinine | CRE-S R1/R2 |
| CRP | CRP-OY R1/R2 |
| Cys-C | Cys-C-OY R1/R2 |
| HDL Cholesterol | HDL-OY R1/R2 |
| LDL Cholesterol | LDL-OY R1/R2 |

Custom Services

Custom production of recombinant proteins and antibodies.

Introducing details of our products and services from the next vol.



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<https://www.oyc.co.jp/en/inquiry/index.html>