



Association of Manufacturers and Formulators of Enzyme Products

Amfep/08/44

30 May 2008

Amfep guidance on REACH pre-registration of enzymes

1. Purpose and timing

During the period 1 June to 1 December 2008, European enzyme manufacturers and importers can pre-register the enzyme substances currently manufactured in EU and imported into the EU for technical applications.

Manufacturers and importers inside the EU may appoint Third Party Representatives to remain anonymous and if based outside the EU, they may appoint Only Representatives.

The pre-registration provision of REACH enables substances to remain on the market subject to later registration in 2010, 2013 or 2018, depending on tonnage.

Pre-registration is made to the European Chemicals Agency (ECHA) and result in the formation of a Substance Information Exchange Forum (SIEF) per enzyme. ECHA will publish a list of pre-registered substances by 1 January 2009.

Amfep has formed a pre-consortium of members and associated manufacturing companies to prepare enzyme (pre-) registrations and SIEF discussions. The Amfep secretariat can be contacted for further information and on questions related to enzyme pre-registrations.

This document is intended to facilitate pre-registration of enzymes. References are given to detailed guidance on enzyme identification, pre-registration and other REACH requirements.

However, it must be considered as guidance only. Each potential registrant remains fully responsible for selecting its enzymes and making individual pre-registrations.

2. Scope

Enzymes listed on the European chemicals inventory EINECS are considered phase-in ('existing') substances and can be pre-registered.

Enzymes manufactured in the EU at least once after 31 May 1992, without being placed on the EU market by the manufacturer or importer, are regarded as phase-in substances.

Only enzymes manufactured in or imported into the EU above 1 tonne per year, per manufacturer or importer, need to be considered for pre-registration.

Extended pre-registration deadlines apply to the first time manufacturer/importer of EINECS listed enzymes exceeding 1 tonne per year after 1 December 2008: no later than 6 months after first manufacture/import and 12 months before the relevant registration deadline.

Enzymes and tonnages used only for food and feed need not be pre-registered and registered. However, 'food' enzymes used to make non-food products e.g. from sugar/starch, should be.

Enzymes notified as new substances according to Dir. 67/548/EEC (ELINCS substances) will be considered already registered under REACH (according to the original tonnage band).

3. Identification of enzyme type, names and numbers, and enzymes for read-across

Enzymes should be identified and pre-registered per EINECS/CAS/IUBMB number, the EINECS/CAS combination resulting from the EINECS inventory.

The appropriate, corresponding IUBMB number and name are important for systematic enzyme identification and SIEF formation.

Some enzyme entries on EINECS are either too broad or narrow compared to the IUBMB classification. An example is shown below.

Alpha-amylase has IUBMB number 3.2.1.1.

According to the EINECS list, alpha-amylase can be associated with the following entries:

- EC 232-874-6, Amylase, alpha-
- EC 232-575-0, Carbohydrase
- EC 232-889-8, Glucosidase
- EC 232-588-1, Amylase, alpha-, *Aspergillus oryzae*
- EC 232-560-9, Amylase, bacterial
- EC 232-742-8, Amylase, fungal

Pre-SIEF's will be formed per EINECS number and the corresponding CAS number from the EINECS list will automatically be assigned using the REACH IT tools.

In order to ensure one SIEF for IUBMB 3.2.1.1 alpha-amylase, Amfep has established a systematic link between EINECS number and IUBMB number as 1:1.

This 'EINECS-IUBMB break-down' list is found in Annex I.

For example, EC 232-874-6, Amylase, alpha- should be used for pre-registration of IUBMB 3.2.1.1 alpha-amylase, not other EINECS entries.

The Amfep List of Commercial Enzymes contains IUBMB numbers as well as information on application categories (food, feed and technical). However, the list is dynamic and some enzyme types and specific IUBMB numbers could be missing from the list. Furthermore, there is no information on tonnage (see section 4 below). The Amfep List as well as EINECS contains some broad enzyme categories, e.g.

- Aminopeptidase
- Carbohydrase
- Carboxypeptidase
- Glucosidase

- Hemicellulase
- Pentosanase
- Protease / Proteinase

not allowing assignment of full IUBMB numbers, and if a more specific EINECS entry is available, this should be used for pre-registration.

However, Amfep foresees that pre-SIEF's may be formed using some of the broad enzyme entries on EINECS if there is no alternative.

Finally, a limited number of enzymes on the Amfep List do not appear on EINECS and are therefore generally to be considered non phase-in substances that cannot be pre-registered.

In cases where a pre-registrant is in doubt regarding the EINECS-IUBMB combination for a particular enzyme, the Amfep secretariat would appreciate being consulted as early as possible.

Read-across substances can be also indicated at pre-registration. By indicating read-across substances, pre-SIEF members (registrants who pre-registered the same substance) have link to the pre-SIEF homepage of the read-across substance and can share data. This function was made by ECHA to facilitate smooth discussion on identification and possible merge or de-merge of SIEFs for SIEF formation. Certain properties associated to enzymes can already be considered as making them one or a few group(s) of substances.

However, read-across will be further discussed in the consortium and pre-SIEF's and Amfep advices not filling in this part for the time being. It will be possible to update the pre-registrations later on during the pre-registration period.

The pre-SIEF and SIEF process of transforming the listing of enzymes in EINECS to a systematic identification according to the IUBMB classification will result in changes of names and numbers for some enzymes compared to the currently marketed products.

4. Calculation of enzyme tonnage and envisaged registration deadlines

Tonnages must be calculated on enzyme concentrate basis excluding water/solvent, including the declared active enzyme protein and other constituents but not comprising product formulation ingredients (stabilisers, carriers etc.). Enzymes in different commercial enzyme products and tonnages per manufacturer/importer can be summed up as far as catalytic activity i.e. IUBMB number is the same.

Tonnage should be calculated as an average of three production years. Yearly tonnage of 2008 to be used for pre-registration should be calculated as an average of 2005, 2006 and 2007. Note that 1-100 tonnage must be pre-registered either as 1-10 or 10-100 tonnes per year. The registration deadline for each tonnage band is shown in the table below.

Yearly Tonnage	Deadline date for Registration
≥1000	1 st December 2010
≥100 <1000	1 st June 2013
≥1 <100	1 st June 2018

5. Pre-registration to ECHA: Format and data to be submitted

Amfep recommends using the IUCLID5 Pre-registration plug-in as IT tool for pre-registration. ECHA provides further guidance on its website and the Amfep secretariat can be contacted regarding specific enzyme data.

In addition to the data mentioned above, name and address of potential registrant (legal entity) and contact person details for the SIEF at substance level must be submitted.

As optional information to be given is a request to be SIEF formation facilitator. Sharing of this task is discussed in the consortium and other potential registrants are advised to inform the Amfep secretariat ahead of pre-registration.

6. Other REACH obligations

Amfep members may need to pre-register other substances than enzymes, e.g. enzyme formulation ingredients imported directly or in enzyme preparations from non-EU countries. Members should also make sure that raw materials used for enzyme production are either exempted or covered by suppliers' pre-registrations if enzymes are manufactured within EU.

Whether registrants or not, Amfep members have other obligations due to REACH such as supply chain information duties and business to business communication on enzymes e.g. classification & labelling and safety data sheets.

7. Further information and guidance

ECHA <http://echa.europa.eu/> provides access to the REACH Regulation and associated guidance documents. A 'Practical steps for pre-registration' document and an IT Workshop presentation on pre-registration pre-SIEF are available.

Cefic www.cefic.org provides a wide range of information materials, guidance and services.

Amfep www.amfep.org provides access to the secretariat with information on the enzyme consortium and questions related to this document.

A Cefic Pre-registration Guidance (April 2008) is available.

Annex: EINECS-IUBMB break-down list



EINECS - IUBMB



Annex to Amfep/08/44 - Amfep guidance on REACH pre-registration

EC #	CAS No.	EINECS Name	IUBMB No	IUBMB Name	double
232-730-2	9012-33-3	Acetylglucosaminidase, .beta.-	3.2.1.30	beta-D-acetylglucosaminidase	0
232-730-2	9012-33-3	Acetylglucosaminidase, .beta.-	3.2.1.52	beta-N-acetylhexosaminidase	1
232-854-7	9029-90-7	Acetyltransferase, carnitine	2.3.1.7	carnitine O-acetyltransferase	0
232-855-2	9029-91-8	Acetyltransferase, phosphate	2.3.1.8	phosphate acetyltransferase	0
232-883-5	9032-70-6	Adenylyltransferase, nicotinamide mononucleotide	2.7.7.1	nicotinamide-nucleotide adenylyltransferase	0
444-400-7	9026-97-5	Aldolase, deoxyribose phosphate	4.1.2.4	Deoxyribose-phosphate aldolase	0
232-781-0	9024-52-6	Aldolase, fructose diphosphate	4.1.2.13	Fructose-bisphosphate aldolase	0
232-736-5	9012-56-0	Amidase	3.5.1.4	amidase	0
232-787-3	9025-18-7	Amidase, aryl acyl-	3.5.1.13	aryl-acylamidase	0
232-753-8	9014-06-6	Amidase, penicillin	3.5.1.11	penicillin amidase	0
232-732-3	9012-37-7	Aminoacylase	3.5.1.14	aminoacylase	0
232-874-6	9031-94-1	Aminopeptidase	3.4.11.20	aminopeptidase Ey	0
232-874-6	9031-94-1	Aminopeptidase	3.4.11.22	aminopeptidase I	1
232-874-6	9031-94-1	Aminopeptidase	3.4.11.x	Hydrolases; Acting on peptide bonds (peptidases);	1
232-618-3	9001-61-0	Aminopeptidase, cytosol	3.4.11.1	leucyl aminopeptidase	0
232-942-5	9054-63-1	Aminopeptidase, microsomal	3.4.11.2	membrane alanyl aminopeptidase	0
232-981-8	9075-21-2	Aminopeptidase, pyroglutamate	3.4.19.3	pyroglutamyl-peptidase I	0
232-561-4	9000-86-6	Aminotransferase, alanine	2.6.1.2	alanine transaminase	0
232-915-8	9037-67-6	Aminotransferase, aminobutyrate	2.6.1.19	4-aminobutyrate transaminase	0
232-571-9	9000-97-9	Aminotransferase, aspartate	2.6.1.1	aspartate transaminase	0
232-859-4	9030-44-8	Aminotransferase, glutamine-keto acid	2.6.1.15	glutamine-pyruvate transaminase	0
232-778-4	9024-28-6	Ammonia-lyase, phenylalanine	4.3.1.5	phenylalanine ammonia-lyase	0
232-567-7	9000-92-4	Amylase	2.4.1.161	oligosaccharide 4-alpha-D-glucosyltransferase	0
232-565-6	9000-90-2	Amylase, .alpha.-	3.2.1.1	alpha-amylase	0
232-588-1	9001-19-8	Amylase, .alpha.-, Aspergillus oryzae	3.2.1.1	alpha-amylase	0
232-566-1	9000-91-3	Amylase, .beta.-	3.2.1.2	beta-amylase	0
232-560-9	9000-85-5	Amylase, bacterial	3.2.1.1	alpha-amylase	0
232-742-8	9013-01-8	Amylase, fungal	3.2.1.1	alpha-amylase	0
232-877-2	9032-08-0	Amylase, gluco-	3.2.1.3	glucan 1,4-alpha-glucosidase	0
232-956-1	9067-73-6	Amylase, iso-	3.2.1.68	isoamylase	0
232-569-8	9000-95-7	Apyrase	3.6.1.5	apyrase	0
253-463-8	37325-54-5	Arabinanase	3.5.1.1	asparaginase	0
232-957-7	9067-74-7	Arabinofuranosidase, .alpha.-l-	3.2.1.55	alpha-N-arabinofuranosidase	0
232-967-1	9073-41-0	Arabinogalactanase	3.2.1.89	arabinogalactan endo-1,4-beta-galactosidase	0
232-570-3	9000-96-8	Arginase	3.5.3.1	arginase	0
232-570-3	9000-96-8	Arginase	3.5.3.22	proclavamate amidohydrolase	1
232-765-3	9015-68-3	Asparaginase	3.5.1.1	asparaginase	0
232-572-4	9001-00-7	Bromelain, juice	3.4.22.33	Fruit bromelain	0
253-387-5	37189-34-7	Bromelain, stem	3.4.22.32	Stem bromelain	0
232-625-1	9001-69-8	Carbamoyltransferase, ornithine	2.1.3.3	ornithine carbamoyltransferase	0
232-625-1	9001-69-8	Carbamoyltransferase, ornithine	2.1.3.9	N-acetylornithine carbamoyltransferase	1
232-575-0	9001-02-9	Carbohydrase	3.2.1.x	Hydrolases; Glycosylases; Glycosidases, i.e. enzyn	0
232-976-0	9073-94-3	Carboxykinase, phosphopyruvate (adenosine triphospha	4.1.1.49	Phosphoenolpyruvate carboxykinase (ATP)	0
232-745-4	9013-12-1	Carboxykinase, phosphopyruvate (pyrophosphate)	4.1.1.38	phosphoenolpyruvate carboxykinase (diphosphate)	0
232-958-2	9067-77-0	Carboxylase, phosphopyruvate (phosphate)	4.1.1.31	Phosphoenolpyruvate carboxylase	0
234-297-5	11075-17-5	Carboxypeptidase A	3.4.17.1	carboxypeptidase A	0
232-788-9	9025-24-5	Carboxypeptidase B	3.4.17.2	carboxypeptidase B	0
232-789-4	9025-25-6	Carboxypeptidase, glycine	3.4.17.4	Gly-Xaa carboxypeptidase	0
232-934-1	9046-67-7	Carboxypeptidase, serine	3.4.16.5	carboxypeptidase C	0
253-447-0	37288-59-8	Carrageenanase, .kappa.-	3.2.1.83	kappa-carrageenase	0
256-860-4	50936-37-3	Carrageenanase, .lambda.-	3.2.1.83	kappa-carrageenase	0
232-577-1	9001-05-2	Catalase	1.11.1.6	catalase	0
232-881-4	9032-68-2	Cathepsin C	3.4.14.1	dipeptidyl-peptidase I	0
253-465-9	37329-65-0	Cellobiohydrolase, exo-	3.2.1.150	oligoxylglucan reducing-end-specific cellobiohydro	0
253-465-9	37329-65-0	Cellobiohydrolase, exo-	3.2.1.91	cellulose 1,4-beta-cellobiosidase	1
232-734-4	9012-54-8	Cellulase	3.2.1.4	cellulase	0
232-728-1	9012-26-4	Cephalosporinase	3.5.2.6	beta-lactamase	0
232-728-1	9012-26-4	Cephalosporinase	3.5.2.8	Deleted entry: cephalosporinase. Now included with	1
232-578-7	9001-06-3	Chitinase	3.2.1.14	chitinase	0
232-580-8	9001-09-6	Chymopapain	3.4.22.6	chymopapain	0
232-671-2	9004-07-3	Chymotrypsin	3.4.21.1	chymotrypsin	0
232-822-2	9028-00-6	Clostripain	3.4.22.8	clostripain	0
232-583-4	9001-13-2	Coagulase	3.4.21.x	Hydrolases; Acting on peptide bonds (peptidases);	0
232-582-9	9001-12-1	Collagenase	3.4.24.3	microbial collagenase	0
232-582-9	9001-12-1	Collagenase	3.4.24.34	neutrophil collagenase	1
232-582-9	9001-12-1	Collagenase	3.4.24.7	interstitial collagenase	1
253-471-1	37340-58-2	Creatinase	3.5.3.3	creatinase	0
232-786-8	9025-13-2	Creatininase	3.5.2.10	creatininase	0
232-959-8	9067-84-9	Deaminase	1.4.3.4	amine oxidase (flavin-containing)	0
232-959-8	9067-84-9	Deaminase	1.4.3.6	amine oxidase (copper-containing)	1
232-959-8	9067-84-9	Deaminase	2.5.1.61	hydroxymethylbilane synthase	1
232-959-8	9067-84-9	Deaminase	3.5.1.15	aspartoacylase	1
232-959-8	9067-84-9	Deaminase	3.5.1.19	nicotinamidase	1
232-959-8	9067-84-9	Deaminase	3.5.1.4	amidase	1
232-959-8	9067-84-9	Deaminase	3.5.1.x	Some enzymes in this IUBMB group	0
232-959-8	9067-84-9	Deaminase	3.5.4.x	Some enzymes in this IUBMB group	0
232-959-8	9067-84-9	Deaminase	3.5.99.x	Some enzymes in this IUBMB group	0
232-959-8	9067-84-9	Deaminase	4.3.1.x	Some enzymes in this IUBMB group	0
232-959-8	9067-84-9	Deaminase	4.4.1.1	cystathionine gamma-lyase	0
232-817-5	9026-93-1	Deaminase, adenosine	3.5.4.4	adenosine deaminase	0
232-876-7	9032-05-7	Deaminase, formiminoctetrahydrofolate cyclo-	4.3.1.4	formimidoyltetrahydrofolate cyclodeaminase	0
232-892-4	9033-16-3	Deaminase, guanine	3.5.4.3	guanine deaminase	0

232-782-6	9024-58-2	Decarboxylase, glutamate	4.1.1.11	Aspartate 1-decarboxylase	0
232-782-6	9024-58-2	Decarboxylase, glutamate	4.1.1.15	Glutamate decarboxylase	1
232-783-1	9024-76-4	Decarboxylase, lysine	4.1.1.18	Lysine decarboxylase	0
232-785-2	9024-97-9	Decarboxylase, oxalate	4.1.1.2	Oxalate decarboxylase	0
232-652-9	9002-09-9	Decarboxylase, tyrosine	4.1.1.25	Tyrosine decarboxylase	0
232-576-6	9001-03-0	Dehydratase, carbonate	4.2.1.1	carbonate dehydratase	0
254-441-0	39386-01-1	Dehydratase, carbonate (human erythrocyte B)	4.2.1.1	carbonate dehydratase	0
258-634-0	53570-56-2	Dehydratase, carbonate (human erythrocyte C)	4.2.1.1	carbonate dehydratase	0
232-907-4	9035-82-9	Dehydrogenase	1.1.1.x	Oxidoreductases; Acting on the CH-OH group of do	0
232-907-4	9035-82-9	Dehydrogenase	1.1.2.x	Oxidoreductases; Acting on the CH-OH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.1.5.x	Oxidoreductases; Acting on the CH-OH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.1.99.x	Oxidoreductases; Acting on the CH-OH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.10.1.x	Oxidoreductases; Acting on diphenols and related s	1
232-907-4	9035-82-9	Dehydrogenase	1.10.99.x	Oxidoreductases; Acting on diphenols and related s	1
232-907-4	9035-82-9	Dehydrogenase	1.12.1.x	Oxidoreductases; Acting on hydrogen as donor; Wit	1
232-907-4	9035-82-9	Dehydrogenase	1.17.1.x	Oxidoreductases; Acting on CH or CH2 groups; Wit	1
232-907-4	9035-82-9	Dehydrogenase	1.17.99.x	Oxidoreductases; Acting on CH or CH2 groups; Wit	1
232-907-4	9035-82-9	Dehydrogenase	1.2.1.x	Oxidoreductases; Acting on the aldehyde or oxo gr	1
232-907-4	9035-82-9	Dehydrogenase	1.2.4.x	Oxidoreductases; Acting on the aldehyde or oxo gr	1
232-907-4	9035-82-9	Dehydrogenase	1.2.7.x	Oxidoreductases; Acting on the aldehyde or oxo gr	1
232-907-4	9035-82-9	Dehydrogenase	1.2.99.x	Oxidoreductases; Acting on the aldehyde or oxo gr	1
232-907-4	9035-82-9	Dehydrogenase	1.3.1.x	Oxidoreductases; Acting on the CH-CH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.3.2.x	Oxidoreductases; Acting on the CH-CH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.3.99.x	Oxidoreductases; Acting on the CH-CH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.4.1.x	Oxidoreductases; Acting on the CH-NH2 group of d	1
232-907-4	9035-82-9	Dehydrogenase	1.4.2.x	Oxidoreductases; Acting on the CH-NH2 group of d	1
232-907-4	9035-82-9	Dehydrogenase	1.4.4.x	Oxidoreductases; Acting on the CH-NH2 group of d	1
232-907-4	9035-82-9	Dehydrogenase	1.4.99.x	Oxidoreductases; Acting on the CH-NH2 group of d	1
232-907-4	9035-82-9	Dehydrogenase	1.5.1.x	Oxidoreductases; Acting on the CH-NH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.5.5.x	Oxidoreductases; Acting on the CH-NH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.5.8.x	Oxidoreductases; Acting on the CH-NH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.5.99.x	Oxidoreductases; Acting on the CH-NH group of do	1
232-907-4	9035-82-9	Dehydrogenase	1.6.5.x	Oxidoreductases; Acting on NADH or NADPH; With	1
232-907-4	9035-82-9	Dehydrogenase	1.6.99.x	Oxidoreductases; Acting on NADH or NADPH; With	1
232-907-4	9035-82-9	Dehydrogenase	1.8.1.x	Oxidoreductases; Acting on a sulfur group of donor:	1
232-907-4	9035-82-9	Dehydrogenase	1.8.2.x	Oxidoreductases; Acting on a sulfur group of donor:	1
232-907-4	9035-82-9	Dehydrogenase	1.8.5.x	Oxidoreductases; Acting on a sulfur group of donor:	1
232-769-5	9015-81-0	Dehydrogenase, .beta.-hydroxy steroid	1.1.1.278	3beta-hydroxy-5alpha-steroid dehydrogenase	0
232-769-5	9015-81-0	Dehydrogenase, .beta.-hydroxy steroid	1.1.1.51	3(or 17)beta-hydroxysteroid dehydrogenase	1
232-863-6	9030-87-9	Dehydrogenase, 15-hydroxyprostaglandin	1.1.1.141	15-hydroxyprostaglandin dehydrogenase (NAD+)	0
232-832-7	9028-42-6	Dehydrogenase, 20.beta.-hydroxy steroid	1.1.1.53	3alpha(or 20beta)-hydroxysteroid dehydrogenase	0
232-960-3	9067-92-9	Dehydrogenase, 2-hydroxybutyrate	1.1.1.x	Oxidoreductases; Acting on the CH-OH group of do	0
232-839-5	9028-56-2	Dehydrogenase, 3.alpha.-hydroxy steroid	1.1.1.213	3alpha-hydroxysteroid dehydrogenase (A-specific)	0
232-839-5	9028-56-2	Dehydrogenase, 3.alpha.-hydroxy steroid	1.1.1.50	3alpha-hydroxysteroid dehydrogenase (B-specific)	1
232-831-1	9028-40-4	Dehydrogenase, 3-hydroxyacyl coenzyme A	1.1.1.35	3-hydroxyacyl-CoA dehydrogenase	0
232-830-6	9028-38-0	Dehydrogenase, 3-hydroxybutyrate	1.1.1.30	3-hydroxybutyrate dehydrogenase	0
232-847-9	9029-06-5	Dehydrogenase, alanine	1.4.1.1	alanine dehydrogenase	0
232-870-4	9031-72-5	Dehydrogenase, alcohol	1.1.1.1	alcohol dehydrogenase	0
253-428-7	37250-10-5	Dehydrogenase, alcohol (nicotinamide adenine dinucleo	1.1.1.71	alcohol dehydrogenase [NAD(P)+]	0
232-823-8	9028-12-0	Dehydrogenase, alcohol (nicotinamide adenine dinucleo	1.1.1.2	alcohol dehydrogenase (NADP+)	0
232-845-8	9028-86-8	Dehydrogenase, aldehyde	1.2.1.3	aldehyde dehydrogenase (NAD+)	0
232-846-3	9028-88-0	Dehydrogenase, aldehyde (nicotinamide adenine dinucle	1.2.1.5	aldehyde dehydrogenase [NAD(P)+]	0
232-829-0	9028-36-8	Dehydrogenase, d-lactate	1.1.1.28	D-lactate dehydrogenase	0
232-844-2	9028-85-7	Dehydrogenase, formate	1.2.1.2	formate dehydrogenase	0
232-837-4	9028-54-0	Dehydrogenase, galactose	1.1.1.48	galactose 1-dehydrogenase	0
232-836-9	9028-53-9	Dehydrogenase, glucose	1.1.1.47	glucose 1-dehydrogenase	0
232-602-6	9001-40-5	Dehydrogenase, glucose 6-phosphate	1.1.1.49	glucose-6-phosphate dehydrogenase	0
291-172-8	90342-35-1	Dehydrogenase, glucose 6-phosphate, 5-ethyl-5-phenyl-	1.1.1.49	glucose-6-phosphate dehydrogenase	0
291-171-2	90342-34-0	Dehydrogenase, glucose 6-phosphate, 5-ethylidihydro-5-	1.1.1.49	glucose-6-phosphate dehydrogenase	0
291-170-7	90342-33-9	Dehydrogenase, glucose 6-phosphate, 5H-dibenz[b,f]azep	1.1.1.49	glucose-6-phosphate dehydrogenase	0
232-607-3	9001-46-1	Dehydrogenase, glutamate	1.4.1.2	glutamate dehydrogenase	0
232-848-4	9029-12-3	Dehydrogenase, glutamate (nicotinamide adenine dinucle	1.4.1.3	glutamate dehydrogenase [NAD(P)+]	0
232-609-4	9001-50-7	Dehydrogenase, glyceraldehyde phosphate	1.2.1.12	glyceraldehyde-3-phosphate dehydrogenase (phos)	0
232-824-3	9028-14-2	Dehydrogenase, glycerol	1.1.1.6	glycerol dehydrogenase	0
232-824-3	9028-14-2	Dehydrogenase, glycerol	1.1.99.22	glycerol dehydrogenase (acceptor)	1
232-982-3	9075-65-4	Dehydrogenase, glycerol phosphate	1.1.1.8	glycerol-3-phosphate dehydrogenase (NAD+)	0
232-835-3	9028-48-2	Dehydrogenase, isocitrate (nicotinamide adenine dinucle	1.1.1.42	isocitrate dehydrogenase (NADP+)	0
232-617-8	9001-60-9	Dehydrogenase, lactate	1.1.1.27	L-lactate dehydrogenase	0
232-986-5	9078-32-4	Dehydrogenase, lactate (cytochrome)	1.1.2.3	L-lactate dehydrogenase (cytochrome)	0
232-825-9	9028-21-1	Dehydrogenase, l-iditol	1.1.1.14	L-iditol 2-dehydrogenase	0
232-587-6	9001-18-7	Dehydrogenase, lipoamide	1.8.1.4	dihydrolipoil dehydrogenase	0
232-622-5	9001-64-3	Dehydrogenase, malate	1.1.1.37	malate dehydrogenase	0
232-833-2	9028-46-0	Dehydrogenase, malate (decarboxylating)	1.1.1.39	malate dehydrogenase (decarboxylating)	0
232-834-8	9028-47-1	Dehydrogenase, malate (oxalacetate-decarboxylating) (n	1.1.1.40	malate dehydrogenase (oxaloacetate-decarboxylati	0
232-961-9	9067-93-0	Dehydrogenase, malate (pig heart)	1.1.1.39	malate dehydrogenase (decarboxylating)	0
232-635-6	9001-82-5	Dehydrogenase, phosphogluconate	1.1.1.43	phosphogluconate 2-dehydrogenase	0
232-988-6	9079-67-8	Dehydrogenase, reduced nicotinamide adenine dinucleo	1.6.99.3	NADH dehydrogenase	0
253-414-0	37228-65-2	Dehydrogenase, sarcosine	1.5.99.1	sarcosine dehydrogenase	0
253-429-2	37250-88-7	Dehydrogenase, succinate semialdehyde (nicotinamide a	1.2.1.16	succinate-semialdehyde dehydrogenase [NAD(P)+]	0
232-826-4	9028-26-6	Dehydrogenase, uridine diphosphoglucose	1.1.1.22	UDP-glucose 6-dehydrogenase	0
253-449-1	37289-15-9	Deaminase, creatinine	3.5.4.21	creatinine deaminase	0
232-803-9	9025-70-1	Dextranase	3.2.1.11	dextranase	0
253-474-8	37340-89-9	Diaphorase	1.14.13.39	nitric-oxide synthase	0
253-474-8	37340-89-9	Diaphorase	1.3.1.74	2-alkenal reductase	1
253-474-8	37340-89-9	Diaphorase	1.5.1.29	FMN reductase	1

253-474-8	37340-89-9	Diaphorase	1.5.1.30	flavin reductase	1
253-474-8	37340-89-9	Diaphorase	1.6.2.2	cytochrome-b5 reductase	1
253-474-8	37340-89-9	Diaphorase	1.6.5.2	NAD(P)H dehydrogenase (quinone)	1
253-474-8	37340-89-9	Diaphorase	1.6.5.5	NADPH:quinone reductase	1
253-474-8	37340-89-9	Diaphorase	1.6.99.3	NADH dehydrogenase	1
253-474-8	37340-89-9	Diaphorase	1.6.99.5	NADH dehydrogenase (quinone)	1
253-474-8	37340-89-9	Diaphorase	1.8.1.4	dihydropyridin dehydrogenase	1
232-791-5	9025-32-5	Dipeptidase, proline	3.4.13.9	Xaa-Pro dipeptidase	0
232-943-0	9054-89-1	Dismutase, superoxide	1.15.1.1	superoxide dismutase	0
232-670-7	9004-06-2	Elastase	3.4.21.36	pancreatic elastase	0
232-670-7	9004-06-2	Elastase	3.4.21.37	leukocyte elastase	1
254-453-6	39445-21-1	Elastase (pig pancreas)	3.4.21.36	pancreatic elastase	0
286-055-3	85186-71-6	Enzymes, com., Driselase	3.2.1.23	beta-galactosidase	0
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.1.1.13	sterol esterase	0
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.1.1.3	triacylglycerol lipase	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.1.21.1	deoxyribonuclease I	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.1.26.10	ribonuclease IX	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.1.27.5	pancreatic ribonuclease	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.2.1.1	alpha-amylase	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.2.1.68	isoamylase	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.115	equine arterivirus serine peptidase	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.34	plasma kallikrein	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.35	tissue kallikrein	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.36	pancreatic elastase	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.4	trypsin	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.70	Pancreatic endopeptidase E	1
272-915-5	68920-08-1	Enzymes, pancreatic, swine	3.4.21.71	Pancreatic elastase II	1
232-872-5	9031-76-9	Epimerase, aldose 1-	5.1.3.3	Aldose 1-epimerase	0
232-559-3	9000-81-1	Esterase, acetyl choline	3.1.1.7	acetylcholinesterase	0
232-884-0	9032-73-9	Esterase, aryl	3.1.1.2	arylesterase	0
232-773-7	9016-18-6	Esterase, carboxyl	3.1.1.1	carboxylesterase	0
232-808-6	9026-00-0	Esterase, cholesterol	3.1.1.13	sterol esterase	0
232-579-2	9001-08-5	Esterase, choline	3.1.1.8	cholinesterase	0
232-807-0	9025-98-3	Esterase, pectin	3.1.1.11	pectinesterase	0
232-599-1	9001-33-6	Ficin	3.4.22.3	ficain	0
232-886-1	9032-83-1	Formiminotransferase, glutamate	2.1.2.5	glutamate formimidoyltransferase	0
232-615-7	9001-57-4	Fructofuranosidase, .beta.-	3.2.1.26	beta-fructofuranosidase	0
232-914-2	9037-65-4	Fucosidase, .alpha.-	3.2.1.51	alpha-L-fucosidase	0
254-421-1	39346-28-6	Galactanase	3.2.1.23	beta-galactosidase	0
254-421-1	39346-28-6	Galactanase	3.2.1.89	arabinogalactan endo-1,4-beta-galactosidase	1
256-778-9	50812-17-4	Galactomannanase	3.2.1.25	beta-mannosidase	0
232-600-5	9001-34-7	Galactosidase	3.2.1.102	blood-group-substance endo-1,4-beta-galactosidase	0
232-600-5	9001-34-7	Galactosidase	3.2.1.103	keratan-sulfate endo-1,4-beta-galactosidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.145	galactan 1,3-beta-galactosidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.22	alpha-galactosidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.23	beta-galactosidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.38	beta-D-fucosidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.46	galactosylceramidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.47	galactosylgalactosylglucosylceramidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.49	alpha-N-acetylgalactosaminidase	1
232-600-5	9001-34-7	Galactosidase	3.2.1.85	6-phospho-beta-galactosidase	1
232-792-0	9025-35-8	Galactosidase, .alpha.-	3.2.1.22	alpha-galactosidase	0
232-864-1	9031-11-2	Galactosidase, .beta.-	3.2.1.108	lactase	0
232-864-1	9031-11-2	Galactosidase, .beta.-	3.2.1.23	beta-galactosidase	1
258-130-0	52720-51-1	Galactosidase, endo-.beta.-	3.2.1.102	blood-group-substance endo-1,4-beta-galactosidase	1
232-767-4	9015-78-5	Glucanase	2.4.1.207	xyloglucan:xyloglucosyl transferase	0
232-767-4	9015-78-5	Glucanase	3.2.1.120	oligoxyloglucan beta-glycosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.151	xyloglucan-specific endo-beta-1,4-glucanase	1
232-767-4	9015-78-5	Glucanase	3.2.1.155	xyloglucan-specific exo-beta-1,4-glucanase	1
232-767-4	9015-78-5	Glucanase	3.2.1.39	glucan endo-1,3-beta-D-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.4	cellulase	1
232-767-4	9015-78-5	Glucanase	3.2.1.54	cyclomaltodextrinase	1
232-767-4	9015-78-5	Glucanase	3.2.1.58	glucan 1,3-beta-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.59	glucan endo-1,3-alpha-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.73	licheninase	1
232-767-4	9015-78-5	Glucanase	3.2.1.74	glucan 1,4-beta-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.75	glucan endo-1,6-beta-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.84	glucan 1,3-alpha-glucosidase	1
232-767-4	9015-78-5	Glucanase	3.2.1.91	cellulose 1,4-beta-cellobiosidase	1
258-785-2	53801-47-1	Glucanase, .alpha.-	3.2.1.59	glucan endo-1,3-alpha-glucosidase	0
258-785-2	53801-47-1	Glucanase, .alpha.-	3.2.1.84	glucan 1,3-alpha-glucosidase	1
232-979-7	9074-98-0	Glucanase, .beta.-	3.2.1.6	endo-1,3(4)-beta-glucanase	0
253-393-8	37205-50-8	Glucanase, 1,3-.alpha.-	3.2.1.59	glucan endo-1,3-alpha-glucosidase	0
253-393-8	37205-50-8	Glucanase, 1,3-.alpha.-	3.2.1.84	glucan 1,3-alpha-glucosidase	1
232-927-3	9044-93-3	Glucanase, 1,3-.beta.-	3.2.1.39	glucan endo-1,3-beta-D-glucosidase	0
232-927-3	9044-93-3	Glucanase, 1,3-.beta.-	3.2.1.58	glucan 1,3-beta-glucosidase	1
253-415-6	37228-69-6	Glucanase, 1,6-.beta.-	3.2.1.75	glucan endo-1,6-beta-glucosidase	0
232-980-2	9074-99-1	Glucanase, endo-.beta.-	3.2.1.39	glucan endo-1,3-beta-D-glucosidase	0
232-980-2	9074-99-1	Glucanase, endo-.beta.-	3.2.1.6	endo-1,3(4)-beta-glucanase	1
232-980-2	9074-99-1	Glucanase, endo-.beta.-	3.2.1.75	glucan endo-1,6-beta-glucosidase	1
263-462-4	62213-14-3	Glucanase, endo-1,3(4)-.beta.-	3.2.1.6	endo-1,3(4)-beta-glucanase	0
232-889-8	9033-06-1	Glucosidase	2.4.1.219	vomilenine glucosyltransferase	0
232-889-8	9033-06-1	Glucosidase	3.2.1.10	oligo-1,6-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.104	steryl-beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.105	3alpha(S)-strictosidine beta-glucosidase	1

232-889-8	9033-06-1	Glucosidase	3.2.1.106	mannosyl-oligosaccharide glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.107	protein-glucosylgalactosylhydroxylysine glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.112	2-deoxyglucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.115	branched-dextran exo-1,2-alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.117	amygdalin beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.122	maltose-6'-phosphate glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.125	raucaffricine beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.126	coniferin beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.147	thioglucohydrolase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.149	beta-primeverosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.161	beta-apiosyl-beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.20	alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.21	beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.3	glucan 1,4-alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.33	amyl-alpha-1,6-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.38	beta-D-fucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.39	glucan endo-1,3-beta-D-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.41	pullulanase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.42	GDP-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.45	glucosylceramidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.48	sucrose alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.52	beta-N-acetylhexosaminidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.58	glucan 1,3-beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.62	glycosylceramidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.70	glucan 1,6-alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.74	glucan 1,4-beta-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.84	glucan 1,3-alpha-glucosidase	1
232-889-8	9033-06-1	Glucosidase	3.2.1.86	6-phospho-beta-glucosidase	1
232-604-7	9001-42-7	Glucosidase, ,alpha.-	3.2.1.20	alpha-glucosidase	0
232-589-7	9001-22-3	Glucosidase, ,beta.-	3.2.1.149	beta-primeverosidase	0
232-589-7	9001-22-3	Glucosidase, ,beta.-	3.2.1.21	beta-glucosidase	0
232-605-2	9001-43-8	Glucosidase, 1,3-,alpha.-	3.2.1.27	Deleted entry: alpha-1,3-glucosidase	0
232-733-9	9012-47-9	Glucosidase, amylo-1,6-	3.2.1.33	amyl-alpha-1,6-glucosidase	0
232-968-7	9073-49-8	Glucosidase, exo-1,3-,beta.-	3.2.1.58	glucan 1,3-beta-glucosidase	0
253-444-4	37288-52-1	Glucosidase, exo-1,4-,beta.-	3.2.1.74	glucan 1,4-beta-glucosidase	0
232-606-8	9001-45-0	Glucuronidase, ,beta.-	3.2.1.31	beta-glucuronidase	0
232-931-5	9046-27-9	Glutamyltransferase, ,gamma.-	2.3.2.13	protein-glutamine gamma-glutamyltransferase	1
232-931-5	9046-27-9	Glutamyltransferase, ,gamma.-	2.3.2.14	D-alanine gamma-glutamyltransferase	1
232-931-5	9046-27-9	Glutamyltransferase, ,gamma.-	2.3.2.2	gamma-glutamyltransferase	1
232-888-2	9032-92-2	Glycosidase	2.4.2.29	queuine tRNA-ribosyltransferase	0
232-888-2	9032-92-2	Glycosidase	2.4.2.6	nucleoside deoxyribosyltransferase	1
232-888-2	9032-92-2	Glycosidase	3.1.4.45	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminyl glycohydrolase	1
232-888-2	9032-92-2	Glycosidase	3.2.1.143	poly(ADP-ribose) glycohydrolase	1
232-888-2	9032-92-2	Glycosidase	3.2.1.45	glucosylceramidase	1
232-888-2	9032-92-2	Glycosidase	3.2.1.96	mannosyl-glycoprotein endo-beta-N-acetylglucosaminidase	1
232-888-2	9032-92-2	Glycosidase	3.2.2.17	deoxyribodipyrimidine endonucleosidase	1
232-888-2	9032-92-2	Glycosidase	3.2.2.20	DNA-3-methyladenine glycosylase I	1
232-888-2	9032-92-2	Glycosidase	3.2.2.21	DNA-3-methyladenine glycosylase II	1
232-888-2	9032-92-2	Glycosidase	3.2.2.22	rRNA N-glycosylase	1
232-888-2	9032-92-2	Glycosidase	3.2.2.23	DNA-formamidopyrimidine glycosylase	1
232-888-2	9032-92-2	Glycosidase	3.2.2.24	ADP-ribosyl[dinitrogen reductase] hydrolase	1
232-888-2	9032-92-2	Glycosidase	3.5.1.52	peptide-N4-(N-acetyl-beta-glucosaminyl)asparagine N-acetylglucosaminyl-proteoglycan 4-beta-glucuronidase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.119	dolichyl-diphosphooligosaccharide-protein glycotransferase	0
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.129	peptidoglycan glycosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.135	galactosylgalactosylxylosylprotein 3-beta-glucuronidase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.18	1,4-alpha-glucan branching enzyme	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.186	glycogenin glycosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.19	cyclomalto-dextrin glucanotransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.219	vomilinenin glycosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.222	O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.225	N-acetylglucosaminyl-proteoglycan 4-beta-glucuronidase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.227	undecaprenyldiphospho-muramoylpentapeptide beta-N-acetylglucosaminyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.234	kaempferol 3-O-galactosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.24	1,4-alpha-glucan 6-alpha-glucosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.25	4-alpha-glucanotransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.27	DNA beta-glucosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.37	fucosylgalactoside 3-alpha-galactosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.40	glycoprotein-fucosylgalactoside alpha-N-acetylglucosaminyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.56	lipopolysaccharide N-acetylglucosaminyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.71	arylamine glycosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.1.85	cyanohydrin beta-glucosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	2.4.2.29	queuine tRNA-ribosyltransferase	1
232-890-3	9033-07-2	Glycosyltransferase	3.2.1.33	amyl-alpha-1,6-glucosidase	1
255-913-9	42613-29-6	Helicase	3.1.14.1	yeast ribonuclease	0
255-913-9	42613-29-6	Helicase	3.6.1.15	nucleoside-triphosphatase	1
255-913-9	42613-29-6	Helicase	3.6.1.3	adenosinetriphosphatase	1
232-799-9	9025-56-3	Hemicellulase	3.2.1.x	Hydrolases; Glycosylases; Glycosidases, i.e. enzymes	0
253-402-5	37213-47-1	Hesperidinase	3.2.1.40	alpha-L-rhamnosidase	0
232-614-1	9001-54-1	Hyaluronidase	3.2.1.35	hyaluronoglucosaminidase	0
232-614-1	9001-54-1	Hyaluronidase	3.2.1.36	hyaluronoglucuronidase	1
232-614-1	9001-54-1	Hyaluronidase	4.2.2.1	hyaluronate lyase	1
253-464-3	37326-33-3	Hyaluronoglucosaminidase	3.2.1.35	hyaluronoglucosaminidase	0
232-887-7	9032-88-6	Hydratase, fumarate	4.2.1.2	fumarate hydratase	0
232-754-3	9014-08-8	Hydratase, phosphopyruvate	4.2.1.11	phosphopyruvate hydratase	0
232-978-1	9074-87-7	Hydrolase, ,gamma.-glutamyl	3.4.17.11	glutamate carboxypeptidase	0

232-978-1	9074-87-7	Hydrolase, gamma.-glutamyl	3.4.19.9	gamma-glutamyl hydrolase	1
253-472-7	37340-59-3	Hydrolase, creatinine cyclo-	3.5.2.10	creatininase	0
232-802-3	9025-67-6	Inulinase	3.2.1.7	inulinase	0
232-944-6	9055-00-9	Isomerase, glucose	5.3.1.5	Xylose isomerase	0
232-603-1	9001-41-6	Isomerase, glucose phosphate	5.3.1.9	Glucose-6-phosphate isomerase	0
232-775-8	9023-88-5	Isomerase, mannose phosphate	5.3.1.8	Mannose-6-phosphate isomerase	0
232-867-8	9031-36-1	Isomerase, steroid .DELTA.-	5.3.3.1	steroid DELTA-isomerase	0
232-774-2	9023-78-3	Isomerase, triose phosphate	5.3.1.1	Triose-phosphate isomerase	0
232-793-6	9025-41-6	Keratinase, Streptomyces	3.4.99.11	Deleted entry: streptomyces alkalophilic keratinase	0
232-647-1	9002-01-1	Kinase (enzyme-activating), strepto-	3.4.x.x	Hydrolases; Acting on peptide bonds (peptidases)	0
232-917-9	9039-53-6	Kinase (enzyme-activating), uro-	3.4.21.31	Transferred entry: now EC 3.4.21.68 t-plasminogen	0
232-818-0	9027-42-3	Kinase (phosphorylating), acetate	2.7.2.1	acetate kinase	0
232-743-3	9013-02-9	Kinase (phosphorylating), adenylate	2.7.4.3	adenylate kinase	0
232-815-4	9026-67-9	Kinase (phosphorylating), choline	2.7.1.32	choline kinase	0
232-585-5	9001-15-4	Kinase (phosphorylating), creatine	2.7.3.2	creatine kinase	0
232-861-5	9030-55-1	Kinase (phosphorylating), glucono-	2.7.1.12	gluconokinase	0
232-862-0	9030-66-4	Kinase (phosphorylating), glycerol	2.7.1.30	glycerol kinase	0
232-814-9	9026-59-9	Kinase (phosphorylating), guanylate	2.7.4.8	guanylate kinase	0
232-611-5	9001-51-8	Kinase (phosphorylating), hexo-	2.7.1.1	hexokinase	0
232-813-3	9026-51-1	Kinase (phosphorylating), nucleoside diphosphate	2.7.4.6	nucleoside-diphosphate kinase	0
232-812-8	9026-50-0	Kinase (phosphorylating), nucleoside monophosphate	2.7.4.4	nucleoside-phosphate kinase	0
232-633-5	9001-80-3	Kinase (phosphorylating), phosphofructo-	2.7.1.11	6-phosphofructokinase	0
232-636-1	9001-83-6	Kinase (phosphorylating), phosphoglycerate	2.7.2.3	phosphoglycerate kinase	0
253-400-4	37211-65-7	Kinase (phosphorylating), polynucleotide 5'-hydroxyl	2.7.1.78	polynucleotide 5'-hydroxyl-kinase	0
283-495-8	84650-14-6	Kinase (phosphorylating), protein, cAMP-dependent	2.7.11.11	cAMP-dependent protein kinase	0
232-616-2	9001-59-6	Kinase (phosphorylating), pyruvate	2.7.1.40	pyruvate kinase	0
232-969-2	9073-59-0	Kinase (phosphorylating), pyruvate (rabbit muscle)	2.7.1.40	pyruvate kinase	0
420-150-4	80498-15-3	Laccase	1.10.3.2	laccase	0
232-970-8	9073-60-3	Lactamase, .beta.-	3.5.2.6	beta-lactamase	0
232-865-7	9031-18-9	Linamarinase	3.2.1.21	beta-glucosidase	0
232-669-1	9004-02-8	Lipase, lipoprotein	3.1.1.34	lipoprotein lipase	0
232-619-9	9001-62-1	Lipase, triacylglycerol	3.1.1.3	triacylglycerol lipase	0
232-619-9	9001-62-1	Lipase, triacylglycerol	3.1.1.79	hormone-sensitive lipase	1
232-751-7	9014-00-0	Luciferase	1.13.12.8	Watasenia-luciferin 2-monooxygenase	0
232-751-7	9014-00-0	Luciferase	1.14.14.3	alkanal monooxygenase (FMN-linked)	1
263-359-4	61970-00-1	Luciferase (firefly luciferin)	1.13.12.7	Photinus-luciferin 4-monooxygenase (ATP-hydrolysis)	0
232-777-9	9024-13-9	Lyase, chondroitin ABC	4.2.2.5	chondroitin AC lyase	0
232-740-7	9012-83-3	Lyase, citrate	4.1.3.6	citrate (pro-3S)-lyase	0
253-430-8	37259-53-3	Lyase, hyaluronate	4.2.2.1	hyaluronate lyase	0
232-891-9	9033-12-9	Lyase, lactoylglutathione	4.4.1.5	lactoylglutathione lyase	0
232-780-5	9024-43-5	Lyase, mandelonitrile	4.1.2.10	Mandelonitrile lyase	0
255-916-5	42616-25-1	Lyase, methionine	4.4.1.11	methionine gamma-lyase	0
232-766-9	9015-75-2	Lyase, pectate	4.2.2.2	pectate lyase	0
232-894-5	9033-35-6	Lyase, pectin	4.2.2.10	pectin lyase	0
442-060-4	112567-89-2	Lyase, S-hydroxymandelonitrile	4.1.2.37	acetone-cyanohydrin lyase	0
442-060-4	112567-89-2	Lyase, S-hydroxymandelonitrile	4.1.2.39	Hydroxynitrilase	1
232-620-4	9001-63-2	Lysozyme	3.2.1.17	lysozyme	0
235-747-3	12650-88-3	Lysozyme (chicken egg white)	3.2.1.17	lysozyme	0
232-954-0	9066-59-5	Lysozyme, hydrochloride	3.2.1.17	lysozyme	0
262-402-4	60748-69-8	Mannanase	3.2.1.100	mannan 1,4-mannobiosidase	0
262-402-4	60748-69-8	Mannanase	3.2.1.101	mannan endo-1,6-alpha-mannosidase	1
262-402-4	60748-69-8	Mannanase	3.2.1.113	mannosyl-oligosaccharide 1,2-alpha-mannosidase	0
262-402-4	60748-69-8	Mannanase	3.2.1.24	transferred entry now EC 3.13.1.3	1
262-402-4	60748-69-8	Mannanase	3.2.1.25	beta-mannosidase	1
262-402-4	60748-69-8	Mannanase	3.2.1.78	mannan endo-1,4-beta-mannosidase	0
253-446-5	37288-54-3	Mannanase, endo-1,4-.beta.-	3.2.1.78	mannan endo-1,4-beta-mannosidase	0
232-794-1	9025-42-7	Mannosidase, .alpha.-	3.2.1.24	transferred entry now EC 3.13.1.3	0
232-727-6	9012-25-3	Methyltransferase, catechol	2.1.1.6	catechol O-methyltransferase	0
232-916-3	9037-68-7	Methyltransferase, noradrenaline N-	2.1.1.28	phenylethanolamine N-methyltransferase	0
232-962-4	9068-31-9	Naringinase	3.2.1.x	Hydrolases; Glycosylases; Glycosidases, i.e. enzyn	0
232-624-6	9001-67-6	Neuraminidase	3.2.1.18	exo-alpha-sialidase	0
257-759-8	52227-85-7	Nuclease, bacteriophage T4 endodeoxyribo-, V	3.1.25.1	deoxyribonuclease (pyrimidine dimer)	0
232-667-0	9003-98-9	Nuclease, deoxyribo-	3.1.21.1	deoxyribonuclease I	0
232-801-8	9025-64-3	Nuclease, deoxyribo-, II	3.1.22.1	deoxyribonuclease II	0
232-912-1	9037-44-9	Nuclease, exodeoxyribo-, III	3.1.11.2	exodeoxyribonuclease III	0
232-809-1	9026-12-4	Nuclease, guanyloribo-	3.1.27.3	ribonuclease T1	0
232-748-0	9013-53-0	Nuclease, micrococcal	3.1.31.1	micrococcal nuclease	0
279-719-9	81295-04-7	Nuclease, restriction endodeoxyribo-, AluI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-720-4	81295-09-2	Nuclease, restriction endodeoxyribo-, BamHI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-474-8	80449-04-3	Nuclease, restriction endodeoxyribo-, BglI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-722-5	81295-12-7	Nuclease, restriction endodeoxyribo-, BglII	3.1.21.4	type II site-specific deoxyribonuclease	0
280-504-7	83589-01-9	Nuclease, restriction endodeoxyribo-, ClaI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-487-9	80498-17-5	Nuclease, restriction endodeoxyribo-, EcoRI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-723-0	81295-15-0	Nuclease, restriction endodeoxyribo-, EcoRII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-724-6	81295-17-2	Nuclease, restriction endodeoxyribo-, HaeII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-725-1	81295-18-3	Nuclease, restriction endodeoxyribo-, HaeIII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-726-7	81295-20-7	Nuclease, restriction endodeoxyribo-, HhaI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-830-2	81811-55-4	Nuclease, restriction endodeoxyribo-, HincII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-727-2	81295-21-8	Nuclease, restriction endodeoxyribo-, HindI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-728-8	81295-22-9	Nuclease, restriction endodeoxyribo-, HindIII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-729-3	81295-23-0	Nuclease, restriction endodeoxyribo-, HinfI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-730-9	81295-24-1	Nuclease, restriction endodeoxyribo-, HpaI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-731-4	81295-25-2	Nuclease, restriction endodeoxyribo-, HpaII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-733-5	81295-27-4	Nuclease, restriction endodeoxyribo-, KpnI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-831-8	81811-56-5	Nuclease, restriction endodeoxyribo-, MspI	3.1.21.4	type II site-specific deoxyribonuclease	0

279-734-0	81295-32-1	Nuclease, restriction endodeoxyribo-, PstI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-735-6	81295-33-2	Nuclease, restriction endodeoxyribo-, PvuII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-736-1	81295-34-3	Nuclease, restriction endodeoxyribo-, PvuII	3.1.21.4	type II site-specific deoxyribonuclease	0
279-737-7	81295-38-7	Nuclease, restriction endodeoxyribo-, Sall	3.1.21.4	type II site-specific deoxyribonuclease	0
279-944-2	82391-42-2	Nuclease, restriction endodeoxyribo-, SmaI	3.1.21.4	type II site-specific deoxyribonuclease	0
286-569-8	85270-15-1	Nuclease, restriction endodeoxyribo-, SphI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-738-2	81295-40-1	Nuclease, restriction endodeoxyribo-, TaqI	3.1.21.4	type II site-specific deoxyribonuclease	0
279-739-8	81295-42-3	Nuclease, restriction endodeoxyribo-, XbaI	3.1.21.4	type II site-specific deoxyribonuclease	0
232-646-6	9001-99-4	Nuclease, ribo-	3.1.14.1	yeast ribonuclease	0
232-646-6	9001-99-4	Nuclease, ribo-	3.1.26.1	Physarum polycephalum ribonuclease	1
232-646-6	9001-99-4	Nuclease, ribo-	3.1.26.10	ribonuclease IX	1
232-646-6	9001-99-4	Nuclease, ribo-	3.1.27.5	pancreatic ribonuclease	1
232-646-6	9001-99-4	Nuclease, ribo-	3.1.27.6	Enterobacter ribonuclease	1
253-438-1	37278-25-4	Nuclease, ribo- (non-base specific)	3.1.27.1	ribonuclease T2	0
253-394-3	37205-57-5	Nuclease, ribo- (purine-specific)	3.1.27.4	ribonuclease U2	0
253-443-9	37288-25-8	Nuclease, single-stranded nucleate endo-	3.1.30.1	Aspergillus nuclease S1	0
253-473-2	37340-82-2	Nuclease, streptococcal deoxyribo-	3.1.21.4	type II site-specific deoxyribonuclease	0
232-820-1	9027-73-0	Nucleotidase, 5'-	3.1.3.5	5'-nucleotidase	0
232-741-2	9012-90-2	Nucleotidyltransferase, deoxyribonucleate	2.7.7.7	DNA-directed DNA polymerase	0
232-964-5	9068-38-6	Nucleotidyltransferase, deoxyribonucleate, RNA-depend	2.7.7.49	RNA-directed DNA polymerase	0
232-755-9	9014-12-4	Nucleotidyltransferase, polyribonucleotide	2.7.7.8	polyribonucleotide nucleotidyltransferase	0
232-756-4	9014-24-8	Nucleotidyltransferase, ribonucleate	2.7.7.6	DNA-directed RNA polymerase	0
232-819-6	9027-67-2	Nucleotidyltransferase, terminal deoxyribo-	2.7.7.31	DNA nucleotidylexotransferase	0
232-971-3	9073-63-6	Oxidase, alcohol	1.1.3.13	alcohol oxidase	0
232-852-6	9029-44-1	Oxidase, ascorbate	1.10.3.3	L-ascorbate oxidase	0
232-842-1	9028-76-6	Oxidase, cholesterol	1.1.3.6	cholesterol oxidase	0
232-840-0	9028-67-5	Oxidase, choline	1.1.3.17	choline oxidase	0
232-840-0	9028-67-5	Oxidase, choline	1.1.99.1	choline dehydrogenase	1
232-586-0	9001-16-5	Oxidase, cytochrome	1.9.3.1	cytochrome-c oxidase	0
232-563-5	9000-88-8	Oxidase, d-amino acid	1.4.3.3	D-amino-acid oxidase	0
232-613-6	9001-53-0	Oxidase, diamine	1.4.3.6	amine oxidase (copper-containing)	0
232-843-7	9028-79-9	Oxidase, galactose	1.1.3.9	galactose oxidase	0
232-601-0	9001-37-0	Oxidase, glucose	1.1.3.4	glucose oxidase	0
232-932-0	9046-28-0	Oxidase, glycerol phosphate	1.1.3.21	glycerol-3-phosphate oxidase	0
232-564-0	9000-89-9	Oxidase, l-amino acid	1.4.3.2	L-amino-acid oxidase	0
232-623-0	9001-66-5	Oxidase, monoamine	1.4.3.4	amine oxidase (flavin-containing)	0
232-623-0	9001-66-5	Oxidase, monoamine	1.5.3.11	polyamine oxidase	1
232-873-0	9031-79-2	Oxidase, oxalate	1.2.3.4	oxalate oxidase	0
232-644-5	9001-96-1	Oxidase, pyruvate	1.2.3.3	pyruvate oxidase	0
232-850-5	9029-22-5	Oxidase, sarcosine	1.5.3.1	sarcosine oxidase	0
232-851-0	9029-39-4	Oxidase, thiol	1.8.3.2	thiol oxidase	0
232-655-5	9002-12-4	Oxidase, urate	1.7.3.3	urate oxidase	0
232-657-6	9002-17-9	Oxidase, xanthine	1.17.3.2	xanthine oxidase	0
232-841-6	9028-72-2	Oxygenase, lactate 2-mono-	1.13.12.4	lactate 2-monooxygenase	0
232-853-1	9029-60-1	Oxygenase, lip-	1.13.11.12	lipoyxygenase	0
232-853-1	9029-60-1	Oxygenase, lip-	1.13.11.45	linoleate 11-lipoyxygenase	1
232-653-4	9002-10-2	Oxygenase, monophenol mono-	1.10.3.1	catechol oxidase	0
232-653-4	9002-10-2	Oxygenase, monophenol mono-	1.14.18.1	monophenol monooxygenase	1
258-659-7	53608-75-6	Pancrelipase	3.1.1.3	triacylglycerol lipase	0
232-627-2	9001-73-4	Papain	3.4.22.2	papain	0
232-766-9	9015-75-2	pectate lyase	4.2.2.2	pectate lyase	1
232-894-5	9033-35-6	Pectin lyase	4.2.2.10	pectin lyase	1
232-628-8	9001-74-5	Penicillinase	3.5.2.6	beta-lactamase	0
232-629-3	9001-75-6	Pepsin A	3.4.23.1	pepsin A	0
232-795-7	9025-48-3	Pepsin B	3.4.23.2	pepsin B	0
232-738-6	9012-71-9	Pepsin C	3.4.23.3	gastricin	0
232-875-1	9031-96-3	Peptidase	3.4.x.x	Hydrolases; Acting on peptide bonds (peptidases)	0
232-761-1	9014-74-8	Peptidase, entero-	3.4.21.9	enteropeptidase	0
232-668-6	9003-99-0	Peroxidase	1.11.1.7	peroxidase	0
263-659-5	62628-26-6	Peroxidase (horseradish protein moiety reduced)	1.11.1.7	peroxidase	0
232-749-6	9013-66-5	Peroxidase, glutathione	1.11.1.9	glutathione peroxidase	0
232-866-2	9031-28-1	Peroxidase, iodide	1.11.1.8	iodide peroxidase	0
232-879-3	9032-24-0	Peroxidase, nicotinamide adenine dinucleotide	1.11.1.1	NADH peroxidase	0
232-744-9	9013-05-2	Phosphatase	3.1.3.x	Hydrolases; Acting on ester bonds; Phosphoric Mor	0
232-630-9	9001-77-8	Phosphatase, acid	3.1.3.2	acid phosphatase	0
232-631-4	9001-78-9	Phosphatase, alkaline	3.1.3.1	alkaline phosphatase	0
232-612-0	9001-52-9	Phosphatase, fructose di-	3.1.3.11	fructose-bisphosphatase	0
232-806-5	9025-82-5	Phosphodiesterase	3.1.15.1	venom exonuclease	0
232-806-5	9025-82-5	Phosphodiesterase	3.1.4.1	phosphodiesterase I	1
232-965-0	9068-54-6	Phosphodiesterase II	3.1.16.1	spleen exonuclease	0
232-920-5	9040-59-9	Phosphodiesterase, cyclic 3',5'-nucleotide	3.1.4.17	3',5'-cyclic-nucleotide phosphodiesterase	0
232-637-7	9001-84-7	Phospholipase A2	3.1.1.4	phospholipase A2	0
232-638-2	9001-86-9	Phospholipase C	3.1.4.3	phospholipase C	0
232-639-8	9001-87-0	Phospholipase D	3.1.4.4	phospholipase D	0
232-634-0	9001-81-4	Phosphomutase, glucose	5.4.2.2	Phosphoglucomutase	0
232-880-9	9032-62-6	Phosphomutase, glycerate (diphosphoglycerate cofactor	5.4.2.1	Phosphoglycerate mutase	0
232-858-9	9030-25-5	Phosphoribosyltransferase, orotate	2.4.2.10	orotate phosphoribosyltransferase	0
232-904-8	9035-74-9	Phosphorylase	2.4.1.1	phosphorylase	0
232-878-8	9032-10-4	Phosphorylase a	2.4.1.1	phosphorylase	0
232-737-0	9012-69-5	Phosphorylase b	2.4.1.1	phosphorylase	0
232-856-8	9030-19-7	Phosphorylase, maltose	2.4.1.8	maltose phosphorylase	0
232-857-3	9030-21-1	Phosphorylase, purine nucleoside	2.4.2.1	purine-nucleoside phosphorylase	0
232-885-6	9032-75-1	Polygalacturonase	3.2.1.15	polygalacturonase	0
232-929-4	9045-35-6	Polygalacturonase, exo-	3.2.1.67	galacturan 1,4-alpha-galacturonidase	0
232-642-4	9001-92-7	Proteinase	3.4.x.x	Hydrolases; Acting on peptide bonds (peptidases)	0

232-933-6	9046-56-4	Proteinase, Agkistrodon serine	3.4.21.28	Transferred entry: now included with EC 3.4.21.74	0
278-856-1	78169-47-8	Proteinase, aspartic	3.4.23.x	Hydrolases; Acting on peptide bonds (peptidases);	0
232-796-2	9025-49-4	Proteinase, Aspergillus acid	3.4.23.18	Aspergillopepsin I	0
232-796-2	9025-49-4	Proteinase, Aspergillus acid	3.4.23.19	Aspergillopepsin II	1
232-977-6	9074-07-1	Proteinase, Aspergillus alkaline	3.4.21.63	Oryzin	0
278-588-5	77000-13-6	Proteinase, Aspergillus neutral	3.4.24.39	deuterolysin	0
254-422-7	39346-39-9	Proteinase, Aspergillus niger neutral	3.4.24.39	deuterolysin	0
232-990-7	9080-55-1	Proteinase, Aspergillus oryzae neutral	3.4.24.39	deuterolysin	0
254-418-5	39335-09-6	Proteinase, Aspergillus parasiticus neutral	3.4.24.39	deuterolysin	0
306-090-0	95979-76-3	Proteinase, Bacillus alcalophilus serine	3.4.21.62	Subtilisin	0
232-972-9	9073-77-2	Proteinase, Bacillus alkaline	3.4.21.62	Subtilisin	0
279-361-3	79986-26-8	Proteinase, Bacillus licheniformis serine	3.4.21.62	Subtilisin	0
278-547-1	76774-43-1	Proteinase, Bacillus neutral	3.4.24.28	bacillolysin	0
255-914-4	42613-33-2	Proteinase, Bacillus polymyxa neutral	3.4.24.28	bacillolysin	0
257-520-8	51931-23-8	Proteinase, Bacillus subtilis	3.4.21.62	Subtilisin	0
232-991-2	9080-56-2	Proteinase, Bacillus subtilis metallo-	3.4.24.28	bacillolysin	0
266-557-9	67051-83-6	Proteinase, Bacillus subtilis serine	3.4.21.62	Subtilisin	0
235-390-3	12211-28-8	Proteinase, Bacillus subtilis, sutilain	3.4.21.x	Hydrolases; Acting on peptide bonds (peptidases);	0
232-918-4	9039-61-6	Proteinase, Bothrops atrox serine	3.4.21.74	Venombin A	0
253-395-9	37205-60-0	Proteinase, Endothia aspartic	3.4.23.22	Endothiapepsin	0
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.21.103	physarolysin	0
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.18	Aspergillopepsin I	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.19	Aspergillopepsin II	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.20	Penicillopepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.21	Rhizopuspepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.23	Mucorpepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.24	Candidapepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.25	Saccharopepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.26	Rhodotorulapepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.28	Acrocylindropepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.30	Pycnoporopepsin	1
256-862-5	50936-52-2	Proteinase, microbial acid	3.4.23.31	Scytalidopepsin A	1
256-863-0	50936-53-3	Proteinase, microbial alkaline	3.4.21.62	Subtilisin	0
256-863-0	50936-53-3	Proteinase, microbial alkaline	3.4.21.63	Oryzin	1
256-863-0	50936-53-3	Proteinase, microbial alkaline	3.4.21.64	Endopeptidase K	1
256-863-0	50936-53-3	Proteinase, microbial alkaline	3.4.21.83	Oligopeptidase B	1
256-863-0	50936-53-3	Proteinase, microbial alkaline	3.4.24.40	serralysin	1
232-966-6	9068-59-1	Proteinase, microbial neutral	3.4.24.25	vibriolysin	0
232-966-6	9068-59-1	Proteinase, microbial neutral	3.4.24.27	thermolysin	1
232-966-6	9068-59-1	Proteinase, microbial neutral	3.4.24.28	bacillolysin	1
232-966-6	9068-59-1	Proteinase, microbial neutral	3.4.24.31	mycolysin	1
232-966-6	9068-59-1	Proteinase, microbial neutral	3.4.24.39	deuterolysin	1
232-975-5	9073-79-4	Proteinase, Mucor aspartic	3.4.23.23	Mucorpepsin	0
253-448-6	37288-76-9	Proteinase, Myxobacter .alpha.-lytic	3.4.21.12	alpha-lytic endopeptidase	0
276-716-4	72561-05-8	Proteinase, Myxobacter AL-1, II	3.4.21.12	alpha-lytic endopeptidase	0
232-992-8	9081-30-5	Proteinase, oryzin	3.4.21.63	Oryzin	0
232-626-7	9001-72-3	Proteinase, pancreatic	3.4.21.70	Pancreatic endopeptidase E	0
253-431-3	37259-58-8	Proteinase, serine	3.4.21.113	pestivirus NS3 polyprotein peptidase	0
253-431-3	37259-58-8	Proteinase, serine	3.4.21.90	Togavirin	1
253-457-5	37312-62-2	Proteinase, Serratia extracellular	3.4.24.40	serralysin	0
259-611-8	55354-32-0	Proteinase, Staphylococcus aureus serine	3.4.24.29	aureolysin	0
232-909-5	9036-06-0	Proteinase, Streptomyces griseus	3.4.21.80	Streptogrisin A	0
232-909-5	9036-06-0	Proteinase, Streptomyces griseus	3.4.21.81	Streptogrisin B	1
279-893-6	82047-85-6	Proteinase, submandibular gland serine, A	3.4.21.40	Deleted entry: submandibular proteinase A	0
254-457-8	39450-01-6	Proteinase, Triticium album serine	3.4.21.64	Endopeptidase K	0
276-433-6	72162-96-0	Prothrombinase	3.4.21.6	coagulation factor Xa	0
232-776-3	9023-92-1	Protopectinase	3.2.1.99	arabinan endo-1,5-alpha-L-arabinosidase	0
232-983-9	9075-68-7	Pullulanase	3.2.1.41	pullulanase	0
232-784-7	9024-82-2	Pyrophosphatase, inorganic	3.6.1.1	inorganic diphosphatase	0
232-608-9	9001-48-3	Reductase, glutathione	1.8.1.7	glutathione-disulfide reductase	0
232-828-5	9028-32-4	Reductase, glyoxylate	1.1.1.26	glyoxylate reductase	0
264-772-2	64295-83-6	Reductase, riboflavin (reduced nicotinamide adenine dinu	1.5.1.29	FMN reductase	0
260-292-2	56626-29-0	Reductase, riboflavin mononucleotide (reduced nicotin	1.5.1.30	flavin reductase	0
232-645-0	9001-98-3	Rennin	3.4.23.4	chymosin	0
232-869-9	9031-54-3	Sphingomyelinase C	3.1.4.12	sphingomyelin phosphodiesterase	0
232-752-2	9014-01-1	Subtilisin	3.4.21.62	Subtilisin	0
232-772-1	9016-17-5	Sulfatase, aryl-	3.1.6.1	arylsulfatase	0
232-821-7	9027-96-7	Synthase, citrate	2.3.3.1	citrate (Si)-synthase	0
232-729-7	9012-31-1	Synthetase, acetyl coenzyme A	6.2.1.1	Acetate-CoA ligase	0
232-747-5	9013-18-7	Synthetase, acyl coenzyme A	6.2.1.3	Long-chain-fatty-acid-CoA ligase	0
232-770-0	9015-85-4	Synthetase, polydeoxyribonucleotide	6.5.1.1	DNA ligase (ATP)	0
232-758-5	9014-36-2	Synthetase, succinyl coenzyme A (guanosine diphospha	6.2.1.4	succinate-CoA ligase (GDP-forming)	0
232-804-4	9025-71-2	Tannase	3.1.1.20	tannase	0
232-973-4	9073-78-3	Thermolysin	3.4.24.27	thermolysin	0
253-424-5	37246-64-3	Thermolysin (Bacillus thermoproteolyticus)	3.4.24.27	thermolysin	0
232-759-0	9014-46-4	Transaldolase	2.2.1.2	transaldolase	0
232-650-8	9002-07-7	Trypsin	3.4.21.4	trypsin	0
232-651-3	9002-08-8	Trypsinogen	3.4.21.4	trypsin	0
232-656-0	9002-13-5	Urease	3.5.1.5	urease	0
232-811-2	9026-22-6	Uridyltransferase, glucose 1-phosphate	2.7.7.9	UTP-glucose-1-phosphate uridyltransferase	0
232-810-7	9026-21-5	Uridyltransferase, hexose 1-phosphate	2.7.7.12	UDP-glucose-hexose-1-phosphate uridyltransferase	0
253-439-7	37278-89-0	Xylanase	3.1.1.72	Acetylxylan esterase	0
253-439-7	37278-89-0	Xylanase	3.2.1.136	oliguronarabinoxylan endo-1,4-beta-xylanase	1
253-439-7	37278-89-0	Xylanase	3.2.1.156	oligosaccharide reducing-end xylanase	1
253-439-7	37278-89-0	Xylanase	3.2.1.32	xylan endo-1,3-beta-xylosidase	1

253-439-7	37278-89-0	Xylanase	3.2.1.72	xylan 1,3-beta-xylosidase	1
253-439-7	37278-89-0	Xylanase	3.2.1.8	endo-1,4-beta-xylanase	1
232-798-3	9025-55-2	Xylanase, endo-1,3-	3.2.1.32	xylan endo-1,3-beta-xylosidase	0
232-800-2	9025-57-4	Xylanase, endo-1,4-	3.2.1.8	endo-1,4-beta-xylanase	0
258-495-6	53362-86-0	Xylosidase, .alpha.-	3.2.1.x	Hydrolases; Glycosylases; Glycosidases, i.e. enzyn	0
258-496-1	53362-87-1	Xylosidase, .beta.-	3.2.1.37	xylan 1,4-beta-xylosidase	0
258-496-1	53362-87-1	Xylosidase, .beta.-	3.2.1.72	xylan 1,3-beta-xylosidase	1
232-797-8	9025-53-0	Xylosidase, exo-1,4-.beta.-	3.2.1.37	xylan 1,4-beta-xylosidase	0