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UNIQUE ENZYMES OF ASPERGILLUS FUNGI USED IN JAPANESE BIOINDUSTRIES

Eiji Ichishima

Biotechnology in Agriculture, Industry and Medicine

Novinka

Fields of Microbiology



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On the mechanism of bilayer separation by extrusion; or, why your large unilamellar vesicles are not really unilamellar

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Starch branching enzymes (SBEs) in banana: genome-wide identification and expression analysis reveal their involvement in fruit development, ripening and regulated responses to abiotic/biotic stresses

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Starch branching enzyme (SBE), which is one of the key enzymes associated with amylopectin biosynthesis, plays important roles in variable biological processes. Despite its importance, SBE is rarely studied in the banana (*Musa acuminata* L.) which is a typical starchy fruit. Here, a family of ten SBE proteins (MaSBE) was firstly identified through genome-wide characterization in *M. acuminata*, which could be clustered into three subfamilies. Systematic transcriptome analysis revealed temporal and spatial expression variations of *MaSBE* genes and differential response patterns under abiotic and biotic stresses in both banana genotypes, Fen Jiao (FJ) and BaXi Jiao (BX). Moreover, *MaSBE2.4* was temporally regulated during fruit development and ripening as well as in response to various abiotic/biotic stresses in both genotypes. Specifically, *MaSBE2.3* expression level was higher in FJ than in BX following cold, salt, and drought stress treatments, and it was specifically induced by fungal infection in BX. Characterization of hormone- and stress-related *cis*-acting elements in the promoters of *MaSBE* genes suggests their multiple biological functions. In conclusion, our study provides new insights into the complex transcriptional characteristics of the *SBE* genes, and demonstrates their crucial roles in improving amylopectin biosynthesis and strengthening stress resistance in banana.

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Insect control: Insects are controlled with this technology by sterilizing male insects that cause damage to crops. At present, the production of insulin through biotechnology is becoming easier. It may be dangerous to inflict damage either from the unintended effects of human science or through the intentional exploitation of biology. Biotech may be at greater risk than other fields of science: microbes are tiny and difficult to identify, yet the risks are potentially immense. Production of insulin: Insulin is a type of hormone secreted naturally from the beta cells of the pancreas. The rate of fuel production is being increased by sequencing the genomes of these plants. He was a Hungarian agricultural engineer known as the "father" of biotechnology. Biotechnology today encompasses several different disciplines (e.g., genetics, biochemistry, molecular biology, etc.). It is very significant in medicine, where it promotes the development of therapeutic proteins and other medicines. Production of more efficient plants for photosynthesis, nitrogen fixation, and higher protein storage capacity. More: "To improve the quality and quantity of drug production in the industry," Production of bioenergy. Microbe-based food production. Bio-farms currently produce hormones, antigens, and vitamins. Biotechnology research increased with the advent of genetic engineering in the 1970s due to the new possibility of improving the genetic material of organisms. Treatment of Genetic Disorder: Genetic engineering attempts to cure genetic diseases by removing the genes responsible for diseases. The secreted interferon inhibits the protein synthesis of the invading virus so that the virus can no longer increase in number. In particular, industrial biotechnology uses enzymes and microorganisms in sectors such as pesticides, food additives, detergents, paper, textiles, and biofuels to producing bio-based products. Agricultural biotechnology is an important tool that helps for better production. You May Also Like What is Cloning? Biotech products are used in agriculture to produce food and beverages, and they are used to treat wastewater and clean up industrial wastes. Types of Cloning Page 2 Published on 14-Apr-2021 Last updated 25-Dec-2021 Taxonomic rank: Living organisms are categorized into kingdoms, divisions, and other units. Biopharmaceuticals are sometimes used interchangeably with "biologics," although they are distinctly different. Blood components derived from donated blood are sometimes called blood products. Production of human growth hormone Production of substances that prevent blood clotting in the brain, heart, and lungs Importance of Biotechnology in Other Sectors Environment Management: Biotechnology plays a vital role in the assimilation of alkene and aromatic compounds, oils, diphenols, phenols, excreta, vegetable products, etc., that is contained in sewage. Biotech helps feed the earth through: -Producing food that fixes vitamin and nutrient shortages with enhanced nutritional profiles; -Generating greater yields of crops with fewer inputs; -Reducing the volumes of agricultural chemicals needed by crops-limiting the environmental run-off of those products; -Use of biotech crops that require fewer pesticide applications and allow farmers to reduce tilling of farmland; -Creation of allergens-free foods and toxins such as mycotoxin; -To help improve cardiovascular health, improve food and crop oil content. Genetic defects such as Urokinase, Cystic fibrosis, Thalassaemia, hemophilia, and others can be cured using recombinant technology. Once upon a time, insulin was stored in the pancreas of cows and pigs and was used in human medicine. Human Interferon: When a body cell is infected with a particular virus, the infected cell responds by releasing a proteinaceous chemical called interferon. Biotechnology also has a wide range of health care products. Besides its meaning, it also has some threats. Micro-injection or a viral vector is used to insert functional genes. Interferon has been used to treat complex hepatitis B, herpes infections, and rabies. Biotechnology is becoming very important in human life because it helps us make medicines that improve our quality of life. It improves the resistance of insects, improves the tolerance of herbicides, and encourages the use of more environmentally-friendly agricultural practices. The most important thing is that biotechnology will play a significant role in this latest case (Corona case) by finding the patient with Covid19 and having the vaccine worldwide. Class, Order, Family, Genus, and Species are all terms used to describe a group of organisms. Kingdom, class, order, family, genus, and species are the taxa recognized by the ICBN. Biotechnology can be harnessed for many other purposes; for example, major companies work with biotechnology companies to develop new drugs or alternative energy sources using plant-based materials or algae. If anyone wants to build up his biotechnology career, he can easily find an influential place in various industries. -Biotechnology allows for the production of medicines and health-related products that improve our quality of life. Biomedical research using biotechnological tools and techniques has given rise to bionics and cybernetics, which focuses on helping disabled people live more manageable lives, prosthetics being a common focus for these fields. Production of Hormone: Human growth hormone is commercially produced in recombinant DNA technology by inserting somatotropin hormone-producing genes that regulate human growth into bacterial plasmids. Through this technology, they can grow the Golden Rice, Bt brinjal, Bt cotton, Bt maize, etc. Someone could also imagine messy conflicts in which one party invests in a biotechnology application that others consider risky or immoral. More Article Basic Logic Gates | Types of Basic Logic Gates Noun Clause | Noun clause examples What Do You Know About Cancer In Biology Complex Sentence | Compound Sentence Top Universities in Germany for Masters in 2022 Data Mining and Knowledge Discovery Counters in Digital Electronics Top Universities in USA for MS in 2022 Tag # Taxonomic rank, what is taxonomic rank User Comments Biofuels: The genes of all the plants from which biofuels are obtained are the primary source of fuel production. Depending on the methods and applications, it often overlaps with similar scientific fields. This traditional process takes the organisms into their natural state, while the more modern form of biotechnology typically requires a more sophisticated alteration of the biological system or organism. Biopharmaceuticals are now fully-fledged biomedical products, including cell therapy, gene therapy, etc. Biotechnology is essentially a broad field of biology that includes the creation or processing of the desired product using living organisms. Identifying criminals: DNA sequencing technology is almost 100 percent correct in identifying criminals in the modern era and has been used successfully since 1975. Biotech products are also used in the manufacturing of pharmaceuticals. Biotechnology is also used to help control pests, either through pesticides or by introducing natural predators. Karl Ereky first used the term "biotechnology" in 1919. Transgenic plants include golden rice, Bt cotton, and soybean maize, to name a few. -Disease, insect, and pest-resistant plant production -Greater meat and milk producing healthy livestock production -Production of medicine from milk, blood, and urine of transgenic domestic animals. In this process, the recombinant DNA technique is applied to the organism, either through a carrier or through microinjection into the plant protoplast. More than two hundred and fifty biotech health care products and vaccines are now available to patients a day, and 13.3 million farmers worldwide use agricultural biotechnology to raise yields, avoid insect and pest damage, and reduce the environmental effect of farming. Biopharmaceuticals is the name given to drugs that have been produced through bioengineering, i.e., Biotechnology. Biologics may be produced by biotechnology methods (recombinant DNA technology) or non-biotechnology methods. Transgenic plants are disease and pest resilient, high-yielding, higher quality, and nutrient rich. The importance of biotechnology in human life is vast. Diabetes requires a lot of insulin to treat. At a glance: Application of Biotechnology in Agriculture -Plant cells, tissue, and organ culture. Baking and brewing bread are examples of processes that fall under biotechnology. Production of Transgenic plant: Transgenic plants are plants that are created by gene transfer through genetic engineering. Insulin and synthetic growth hormones and diagnostic tests to classify different forms of diseases are only a few examples of the effect of biotechnology on medicine. These classifications are known as taxonomic ranks. In medicine, agriculture, or industrial biotechnology, innovations and products are produced annually. Modern biotechnology will help combat diseases, reduce environmental issues, and make industrial production safer, cleaner, and more effective. Biotech products diagnose and treat diseases, develop new vaccines and therapies, and produce medical devices and diagnostics. Fig: Plasmid Importance of Biotechnology in Agriculture Creating more productive plant varieties: An improved variety of plants is created by replacing the best genes of a wild plant or by altering its structure or pattern. Biopharmaceuticals can be synthesized directly in living organisms or produced using recombinant DNA technology, which involves inserting new genes into microorganisms or plant or animal cells to produce proteins that will become drugs. Biotechnology has become an essential part of our modern world. Units of classification: Taxa refers to the units or ranks of classification. The biotech industry is also known as bioindustry (biomedical) or "life science industry" (chemical/pharmaceutical, biotechnology, agro-biotech). Industrial biotechnology has since developed enzymes for use in our everyday lives and the manufacturing sector. It's a technology that's old but evolving. At a glance: Application of biotechnology in the medical field: -Recognition of virus in plants and animals -Diagnosis and treatment of various types of a genetic disorder -Application of microbiological organisms as germ weapon for the defense of the country -Production of antibodies for diagnosis and vaccine of various complex diseases -Production of insulin, interferon, and other hormones synthesized by the bacteria. Transgenic crops contain nif-gene, which can fix nitrogen from the atmosphere. This biotechnology produces hormones like insulin, B-endorphin, somatotropin, somatostatin. It is also used to produce food and beverages, as well as to clean and recycle industrial waste. The rapid advancement of science, with enthusiasm, has also posed concerns about the implications of developments in biotechnology. Published on 17-Dec-2021 Last updated 25-Dec-2021 Biotechnology is a technology that develops or produces various products using biological processes, living organisms, or parts of them. Biotech also helps refine manufacturing processes, the cleaning of the atmosphere, and the development of agriculture. -In the production of delicious fruits or cereals Importance of Biotechnology in Medicine Medicine is one of biotechnology's most valuable aspects. Blood derivatives include immunoglobulins, clotting factors, albumin, and coagulation factors.

Medicine is the science and practice of caring for a patient, managing the diagnosis, prognosis, prevention, treatment, palliation of their injury or disease, and promoting their health. Medicine encompasses a variety of health care practices evolved to maintain and restore health by the prevention and treatment of illness. Contemporary medicine applies biomedical sciences, ... 17/03/2022. Featuring new chapters covering: o Diagnosis: the art of being a doctor – helping readers to develop a confident clinical method in interactions with patients o Elderly medicine, frailty and multimorbidity o Public health o Surgery o Evidence-based medicine o Sepsis and the treatment of bacterial infection o Haematological Oncology o Venous thromboembolic disease ... 17/03/2022. The importance of palliative care for children facing life-threatening illness and their families is now widely acknowledged as an essential part of care, which should be available to all children and families, throughout the child's illness and at the end of life. The new edition of the Oxford Textbook of Palliative Care for Children brings together the most up to date information, ... Institute of National Importance (INI) is a status that may be conferred on a premier public higher education institution in India by an act of Parliament of India, an institution which "serves as a pivotal player in developing highly skilled personnel within the specified region of the country/state". Institutes of National Importance receive special recognition, higher autonomy ...

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