I'm not robot

reCAPTCHA

Continue

Which of the following is a characteristic of the cnidarians (jellyfish and others)

Phylum Cnidaria includes animals that show radial or radial symmetry and are diploblastic, that is, they develop from two embryonic layers. Almost all (about 99 percent) of cnidarians are marine species. Cnidarians contain specialized cells known as cnidocytes (quenching cells) that contain organelles called nematocysts (stingers). These cells are present around the mouth and tentacles, and serve to immobilize loot with toxins present in the cells. The nematost contains saarthed threads, which may have barbs. The outer wall cells have hairlike projections called cnidocils that are sensitive to touch. When touched, the cells are known to burn coercive threads that can either penetrate the prey of the cnidarians or predators (see Figure 1) or sneer at it. These coiled threads release toxins to the target and can often immobilize loot loot or scare away predators. Figure 1: Animals from phylum Cnidaria are healing cells called cnidocytes. Cnidocytes contain large organelles called (a) nematocytes, which store abbreviated threads and aliens. When the hairy projection on the surface of the cell is touched, (b) the thread, alienation and toxin are fired from the organelle. See this video animation showing two anemones involved in the battle. Figure 2: In the first Cnidarians have two distinct body plans, medusa (a) and polyp (b). All cnidarians have two membrane layers, with jelly-like mesoglea between them. Animals in this phytos have two different morphological body plans: polyp or ass and medusa or bell (Figure 2). An example of a polyp form is Hydra spp.; Perhaps the most well-known medusoid animals are jellyfish(jellyfish). Polyp forms are seated as adults, with one opening of the digestive system (mouth) facing the tents around it. Medusa shapes are motile, with mouth and tentacles hanging from the roof-shaped bell. Some cnidarians have polymorphism, that is, they have two body plans during the life cycle. An example is a colonial hydroid called Obelia. The shape of the sitting polyp actually has two types of polyps shown in Figure 3. The first is a gastrozooid, which is adapted to capture robbery and feeding; another type of polyp is a gonozooid, adapted to asexual budding medusa. When the reproductive buds mature, they break off and become free swimming medusa, which is either male or female (dime.). Male medusa makes sperm, while female medusa makes eggs. After fertilization, zigot develops a blastula that develops into a planula larvae. Larvae are free swimming for a while, but eventually attach and a new colonial reproductive polyp is formed. Figure 3: Obelia genciculate sessile form has two types of polyps: gastrozoids that are adapted to capture robbery, and gonozooids in the bud produce medusae asexually. follow Obelia's life cycle. All cnidarians exhibit the presence of two membrane layers in the body, derived from the endoderma and ectoderma embryo. The outer layer (of the ectoderma) is called the epidermis and lines outside the animal, whereas the inner layer (of the endoderma) is called the gastroderm and the lines of the digestive cavity. Between these two membrane layers is an inanimal, jelly-like mesoglea connective tissue layer. In terms of cell complexity, cnidarians show the presence of differentiated cell types in each tissue layer, such as nerve cells, contracted epithelial cells, enzyme secretion cells, and nutrient-absorbing cells, as well as the presence of intercellular compounds. However, the development of organs or organ systems in this phylum has not been improved. The nervous system is primitive, with nerve cells scattered all over the body. This neural network can show the presence of a group of cells in the form of a nerve plexus (singule plexus) or nerve cords. Nerve cells show mixed properties of motor as well as sensory neurons. The predominant signal moculs in these primitive nervous systems are chemical peptides that perform both exciting and inhibitory functions. Despite the simplicity of the nervous system, it coordinates the movement of tentacles, drawing captured booty in the mouth, food digestion, and garbage expulsion. Cnidarians perform extracellular digestion, in which food is taken into the gastrovascular cavity, enzymes are released into the cavity, and cells in the lining cavity absorb nutrients. The gastroascular cavity is just one opening that serves both as a mouth and an tube called an incomplete digestive system. Cnidarian cells exchange oxygen and carbon dioxide, diffusion between cells in the epidermis with water in the environment, and between cells in the gastroderm with water in the gastrovascular cavity. The lack of a circulatory system to move dissolved gases limits the thickness of the body wall and requires dead mesoglea between layers. There is no excretion system or organ, and nitrogen waste simply disperses from cells in water outside the animal or gastro vascular cavity. There is also no circulatory system, so nutrients must be transferred from cells that absorb them into the mucosa of the stomach and blood vessels through mesogleu to other cells. Phylum Cnidaria contains approximately 10,000 of the species described divided into four classes: Anthozoa, Scyphozoa, Cubozoa, and Hydrozoa. Antuzoans, marine anemones and corals are all sitting species, while cjaofozoans (jellyfish) and cubozoans (box gels) are swimming forms. Hydrozoans contain sitting-warm shapes and swimming colonial forms such as Portuguese Man O' War. Do you have an idea to improve this content? love your contribution. Improve this pageLearn More Aquatic animal phylum having cnydocytes CnidariaTemporal range: 580–0 Ma PreЄ Є O S D C P T J K Pg N Ediacaran–Recent Four examples of cnidaria : A jellyfish Chrysaora melanaster A gorgonian Annella mollis A rocky coral Acropora cervicornis A sea anemone Nemanthus annamensis Scientific classification Kingdom: Animalia Subkingdom: Eumetazoa Clade: ParaHoxozoa Phylum: CnidariaHatschek, 1888 Type species Nematostella vectensis[4] Subphyla and classes[3] Subphylum Anthozoa Class Octocorallia Class Hexacorallia Class Ceriantharia Subphylum Medusozoa—jellyfish and hydrozoans:[1] Class Cubozoa—box jellyfish, sea wasps Class Hydrozoa—hydroids, hydra-like animals Class Polypodiozoa—parasites Class Scyphozoa—true jellyfish Class Staurozoa—stalked jellyfish Subphylum Myxozoa—parasites[2] Pacific sea nettles, Chrysaora fuscescens Cnidaria (/nɪˈdɛəriə, naɪ-/)[5] is a phylum under kingdom Animalia containing over 11,000 species[6] of aquatic animals found both in freshwater and marine environments , mainly the last. Their distinctive feature is cnidocytes, specialized cells, which they are used mainly for capturing prey. Their bodies consist of mesoglea, a dead jelly-like substance, sandwiched between two layers of epithelium, which is mostly single cell thick. They mostly have two basic body shapes: swimming medusae and sitting-leed polyps, both of which are radially symmetrical with mouths, surrounded by tentacles that cover cnidocytes. Both forms have one opening and body cavity, which is used for digestion and breathing. Many cnidarian species produce colonies that are separate organisms consisting of medusa-like or polyp-like zooids, or both (heso again they are trimorphytic). Cnidarians activities are coordinated by a decentralised neural network and simple receptors. Several free-swimming species of Cubozoa and Scyphozoa possess a balance of sensing statocysts, and some have simple eyes. Not all cnidarians multiply sexually, with many species having complex life cycles in aborn polyp stages and sexual medusae. Some, however, skip either the polyp or medusa stage. Cnidarians were previously grouped with ctenophores with phylum coelenterata, but raising awareness of their differences led them to insert into a separate phyla. [7] Cnidarians are divided into four main groups: almost fully seated Anthozoa (marine anemones, corals, sea pens); swimming Scyphozoa (jellyfish); Cubozoa (a box of gels); and Hydrozoa (a diverse group that includes all freshwater cnidarians as well as many marine forms, and has both sestile members such as Hydra, and colonial swimmers such as Portugal's Man o' War). Staurozoa has recently been recognized as a class in itself, not a subset of Scyphozoa, and highly derived parasitic Myxozoa and Polypodiozoa were strongly recognized in 2007. [8] Most cnidarians loot on organisms that are the size of plankton animals several times larger than themselves, but many get much of their diet from dinoflagellates, and some are parasites. Many are preyed on by other animals, including marine snails, fish, turtles, and even other cnidarians. Many scleractinian corals, which form the structural foundation of coral reefs, possess polyps that are filled with symbiotic photo-synthetic zooxanthellae. While the reef is made up of corals in almost entirely exclusively warm and shallow marine waters, other cnidarians can be found in great depths, polar regions, and freshwater. Recent phytic analyses support cnidarians monophysis as well as cnidarians as a nursing group of bilaterians. [9] Fossil cnidarians have been found in rocks formed about 580 million years ago, and other fossils suggest that corals may have been present shortly before 490 million years ago and diversified a few million years later. However, molecular clock analysis of mitochondrial genes suggests much older age crown group cnidarians are estimated to be about 741 million years ago, nearly 200 million years before the Cambrian period, as well as fossils. [10] The differences are additional information: Sponge, Ctenophore and Bilateria Cnidarians make up animal fits that are more complex than sponges, about as complex as ctenophores (combs gels) and less complex than bilaterians, which include almost all other animals. Both cnidarians and ctenophores are more complex than sponges because they are: cells associated with intercellular compounds and carpet-like basement membranes; muscle strain; nervous system; and some have sensory organs. Cnidarians are different from all other animals having cnidocytes that fire harpoons as structures and are commonly used primarily to capture prey. For some species, cnidocytes can also be used as anchors. [11] Cnidarians are also distinguished by the fact that they have only one opening in their body for swallowing and secreting, i.e. they do not have a single mouth and anus. Like sponges and ctenophores, cnidarians are the two main layers of cells that sandwich in the middle of a layer of jelly-like material called mesoglea cnidarians; more complex animals have three main layers of cells and a medium-like layer. Thus cnidarians and ctenophores are traditionally labeled diploblastic, along with sponges. [11] [12] However, both cnidarians and ctenophores are a type of muscle that arises in more complex animals from the middle cell layer. [13] As a result, some recent textbooks classified ctenophores as triploblastic[14] and it is suggested that cnidarians evolved from triloblastic ancestors. [13] Sponges[15][16] Cnidarians[11][12] Ctenophores[11][14] Bilateria[11] Cnidocytes No Yes No Colloblasts No Yes Yes No and circulatory organs No Yes Number of main cell layers, between the jelly-like layer Three[17] Two[11] or Three[13][14] Three cells in each layer, which are linked together by cell adhesion molecules but not cellar membranes other than Homoscleromorpha. [18] intercellular connections; basement membranes Sensory organs No Yes Number of cells in the middle jelly layer Many (do not apply) Cells in the outer layers can move inwards and change the functions Yes No (Not applicable) Nervous system No Yes, simple Simple Complex Muscles None Mostly epitheliomuscular Mostly myoeptics Mostly myocytes Description Basic body shape Aboral end Oral end Oral tip Exoderm Gastroderm (Endoderm) Mesoglea Digestive Cavity Medusa (left) and polyp (right)[12] Oral tip actinodiscus polyp With the mouth close-up most adult cnidarians appear either free-swimming medusae or sitting-warm polyps, and many hydrozoan species are known alternately between the two forms. Both are radially symmetrical, such as the wheel and pipe respectively. Since these animals do not have a head, their ends are described as oral cavity (nearest mouth) and abortion (furthest from the mouth). Most have fringe tentacles equipped with cnidocytes around their edges, and medusae usually have an inner ring of touches around the mouth. Some hydroids can consist of colonies of zooids that serve a variety of purposes, such as protection, reproduction and catching prey. The mesoglea of the polyps is usually thin and often soft, but the medusae is usually thick and springy so that it returns to its original form after the muscles around the edge are contracted to squeeze the water, allowing the medusae to swim with a kind of jet engine. [12] Skeleton Medusae's only support structure is mesoglea. Hydra and most marine anemones close their mouth when they are not feeding, and water in the digestive cavity then acts as a hydrostatic skeleton, rather than as a water-filled balloon. Other polyps such as Tubularia use columns of water-filled cells to support. Sea pens stiffen mesoglea with calcium carbonate spicules and tough fibrous proteins instead of sponges. [12] In some colonial polyps, chitinous periderm provides support and some protection of connecting sections and lower parts of individual polyps. Rocky corals secrete massive calcium carbonate exoskeletons. Some polyps collect materials such as grains of sand and shell fragments, which they attach to their outside. Some colonial sea anemones stiff mesoglea with sediment particles. [12] The main cell layers of Cnidaria are dipoblastic animals; in other words, they have two main layers of cells, but more complex animals are triloblasts with three main layers. The two main cell layers of cnidarians form an epithelium that is mostly one cell thick and is attached to the fibrous basal membrane, which they secrete. also secrete jelly-like mesoglea, which separates the layers. The layer that faces outwards, known as the ectoderm (outside the skin), usually contains the following types of cells:[11] Epithelial muscle cells, whose bodies form part of the epithelium, but whose base extends to form muscle fibers in parallel rows. [19] The fibres of the outward-facing cell layer usually go at right angles to the inward-facing fibres. In Anthozoa (anemones, corals, etc.) and Scyphozoa (jellyfish), mesoglea also contains some muscle cells. [12] Cnidocytes, harpoon-like nettle cells that give phylum Cnidaria its name. They appear between or sometimes above muscle cells. [11] Nerve cells. Sensory cells appear between muscle cells or sometimes above them,[11] and communicate through synapses (gaps through which the flow of chemical signals) with motor nerve cells located mainly between muscle cell bases. [12] Some form a simple neural network. Interstitial cells that are notspecialized and can replace lost or damaged cells by converting it into an appropriate type. They are found among the foundations of muscle cells. [11] In addition to epitheliomuscular, nerve and interstitial cells, inward-facing gastroderma (stomach skin) contains gland cells that secrete digestive enzymes. For some species it also contains low concentrations of cnidocytes, which are used to suppress loot, which is still struggling. [11] [12] Mesoglea contains a small number of emetic-like cells,[12] and muscle cells in some species. [11] However, the number of cells and types in the middle class is much lower than that of sponges. [12] Polymorphism Polymorphism refers structurally and functionally to more than two different types of individuals in the same body. It is a characteristic feature of Cnidarians, especially polyp and medusa forms, or zooids with colonial organisms such as hydrozoa. [20] Hydrozoans, colonial individuals who derive from individuals zooids will perform separate tasks. [21] For example, Auly is feeding individuals, gastrozoids; individuals capable of asexual reproduction only, gonozooids, blastostyles and free living or sexually reproduced individuals, medusae. Cnidocytes These nettle cells function as harpoons because their payloads remain connected to the cellular bodies by threads. Three types of cnidocytes are known: [11] [12] Firing sequences of cnida's hydra's nematocyst [12] Operculum (lid) Finger that gets inside out /// Barbs Venom Victim's skin Victim's tissue Nematocysts inject poison into the preibilate, and usually have barbs to keep them embedded in the victims. Most species are nematocists. [11] Spirocysts do not penetrate the prey or inject the venom, but entangled it with small sticky hairs on the thread. Ptychocysts do not use predatory capture - unloaded ptychocysts threads are used to build protective cells in which their owners live. Ptychocysts are found only to Ceriantharia, tube anemones. [12] The main components of cnidocytes are: [11][12] Hydra nematocist before firing. trigger cilium[12] cilium (fine hair), which projects above the surface and acts as a trigger. Spirocyst has no eyelashes. Tough capsule, cnida, in the home thread, its payload and a mixture of chemicals, which may include venom or glue, or both. (cnida is derived from the Greek word κνίδη, which means nettle[22]) Tube-like extension of the wall cnida, indicating the cnida, such as a finger rubber glove pushed inwards. When cnidocyte fires, the finger pops out. If the cell is poisonous to the nematocytes, the fingertip reveals a set of barbs that anchor it to prey. The thread that has an extension of the finger and coils around it until the cnidocyte fires. The thread is usually hollow and supplies chemicals from cnida to the target. Operculum (cover) at the end of cnida. The lid can be one hinged flap or three flap arranged as slices of pie. The body of cells that produces all the other parts. It is difficult to study the firing mechanisms of cnidocytes, because these structures are small but very complex. At least four hypotheses are suggested:[11] Rapid fibre contraction around cnida may increase internal pressure. The thread can be like a reel in the spring that stretches quickly when released. In the case of Chironex (marine polypses), chemical changes in cnida content may cause it to rapidly expand due to polymerisation. Chemical changes in the liquid cnida make it a much more concentrated solution, so that the osmottic pressure causes the water to dilute it very quickly. This mechanism is observed in Hydrozoa class nematocistuses, sometimes creating pressures as high as 140 atmospheres, similar to scuba air tanks, and fully extending the thread to as little as 2 milliseconds (0.002 seconds). [12] Cnidocytes can only fire once, and about 25% of hydra's nematocissts are lost from its tentacles when capturing brine shrimp. The cnidocytes used should be replaced for approximately 48 hours. In order to reduce wasteful firing, two types of stimuli are usually needed to start cnidocytes: nearby sensory cells are determined by chemicals in water, and their eyelashes react to contact. This combination prevents them from firing at distant or dead objects. Groups of cnidocytes are usually connected to nerves and when one fires, the rest of the group requires a weaker minimum stimulus than the cells that fire first. [11] [12] Locomotion Play Media Swimming Sea Nettle known as purple striped jelly (Chrysaora colorata) Medusae float with the shape of a jet impeller: muscles, especially inside the rim call, squeeze water out of the cavity inside the bell, and springs mesoglea powers recovery strokes. Since the tissue layers are very thin, they provide too little power to float against currents and just enough to control the movement of currents. [12] Hydras and some marine anemones can slowly move through rocks and sea or brook beds by various means: creeping like nails, crawling like inchworms, or somersaulting. Some can float awkwardly by waggling their bases. [12] The nervous system and sensations of Cnidarians are generally considered to be not in the brain or even in the central nervous system. However, they are integrated areas of nerve tissue that could be considered a kind of centralization. Most of their bodies are innervated by decentralized neural networks that control their swimming muscles and connect with sensory structures, although each clade has slightly different structures. [23] These sensory structures, commonly called rhopalia, can generate signals in response to various types of stimuli such as light, pressure and much more. Medusa usually has several of them around the difference call, working together to control the motor neural network that directs innervates swimming muscles. Most cnidarians also have a parallel system. In izciphozoans, it manifests itself as a diffuse neural network, which has a modulator effect on the nervous system. [24] As well as creating signal cables between sensory neurons and motoneurons, intermediate neurons in the neural network can also form ganglia, which acts as local coordination centers. Communication between nerve cells can occur with chemical synapses or gap junctions in hydrozoans, although gap junctions are not in all groups. Cnidarians are many of the same neurotransmitters as many animals, including chemicals such as glutamate, GABA, and acetylcholine. [25] This structure ensures that the muscle is stimulated quickly and simultaneously and can be directly stimulated from any point in the body and is also better able to recover from an injury. [23] [24] Medusae and complex swimming colonies such as siphonophores and chondrophores sense slope and acceleration through statocysts, chambers lined with hair that reveal internal movements of mineral grains called statolites. If the body is weighed in the wrong direction, the animal right itself, increasing the strength of the swimming movement on the side, which is too low. Most species have ocelli (simple eyes) that can detect light sources. However, a neat box of jellyfish is unique among Medusae because they have four types of true eyes that have retinas, cornea and lentils. [26] Although the eyes may not make up images, Cubozoa can clearly distinguish the direction from which the light comes and consult on colored objects. [11] [26] Feeding and excretion Cnidal feedings in several ways: predators, dissolved organic chemicals, filtering food particles from water, extracting nutrients from symbiotic algae in their cells, and parasitic mind. Most get most of their food from predation but some, including corals Hetroxenia and Leptogorgia, depend almost entirely on their endosymbionts and absorbing dissolved nutrients. [11] Cnidaria gives symbiotic algae carbon dioxide, some nutrients, a place in the sun and protection against predators. [12] Predatory species use their cnidocytes to poison or sully prey, and those with a poisonous nematocist can start digestion by injecting digestive enzymes. The smell of liquid from the wounded prey makes the touches fold inward and wipe the prey off the mouth. In medusae tentacle around the edge of the bell is often short, and most prey capture is carried out with the mouth of the hands, which are extensions to the edge of the mouth and often frilled and sometimes branched to increase their surface area. Medusae often traps prey or suspended food particles, swimming up, spreading their tentaths and mouths into hands and then sinking. For species for which suspended food particles are important, the tactile and oral arms often have eyelash lines whose beating is caused by currents flowing to the mouth, and some produce mucus nets to the receiver particles. [11] Their digestion is both intracellular and extracellular. When the food is in the digestive cavity, gland cells gastroderm releasing enzymes, which reduces robbery to slurry, usually within a few hours. It circulates through the digestive cavities and colonial cnidarians, through connecting tunnels so that gastroderm cells can absorb nutrients. Absorption can take a few hours, and fermentation in cells can take a few days. Nutrient circulation is driven by water currents caused by eyelashes with gastroderm or muscle movements, or both, so that nutrients reach all parts of the digestive cavity. [12] Nutrients reach the external cell layer by diffusion or, in the case of animals or zoos such as medusae, which have thick mesogleas, they are transported by mobile cells in the mesople. [11] Non-digestible predatory remains are expelled through the mouth. The main waste of the internal processes of cells is ammonia, which is removed by external and internal water currents. [12] Breathing There are no respiratory organs, and both layers of cells absorb oxygen from the surrounding water and pump out oxygen dioxide. When the water in the digestive cavity becomes stale it must be replaced, and nutrients that are not absorbed will be expelled by it. Some Anthozoa have ciliated grooves on their tentacle, allowing them to pump water from and into the digestive cavity without opening their mouths. It improves breathing after feeding and allows these animals, which use the cavity as a hydrostatic skeleton, to control pressure in the cavity without expelling the undiged food. [11] Cnidaria, which carries photosynthetic symphonic symphonic may be the opposite of the problem, exceeding the oxygen, which may prove toxic. Animals produce large amounts of antioxidants to neutralize excess oxygen. [11] Recovery All cnidarians can regenerate, allowing them to recover from injury and reproduce asexually. Medusae has limited ability to rejuvenate, but polyps can be done from small pieces or even collections of separated cells. This allows corals to recover even after apparently being destroyed by predators. [11] Reproduction 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Medial life cycle:[11][12]1–3 Larval looking site4-8 Polyps aug9-11 Polyp strobilates12-14 Medusa grows Sexual cnidarian sexual reproduction often involves complex life cycles with both polyp and medusa stages. For example, Scyphozoa (jellyfish) and Cubozoa (box jelly) larvae float until it finds a good place and then becomes a polyp. It grows normally, but then absorbs its tentacle and decomposes horizontally in a series of discs that become juvenile medusae, a process called strobilation. The cubs swim off and slowly grow until maturity, but the polyp grows again and can continue strobilating periodically. Adults have gonads of gastroderm, and these release eggs and sperm in the water breeding season. [11] [12] The succession of these phenomena of different organized generations (one asexually reproducing, sedentary polyp followed by a free-swimming medusa or a sedentary polyp that reproduces sexually)[27] is sometimes referred to as alternating asexual and sexual phases or metagenesis, but should not be confused with alternating generations as found in plants. Abbreviated forms in this life cycle are common, for example, some ocean scyphozoans skip the polyp stage completely, and cubozoan polyps produce only one medusa. Hydrozoa has different life cycles. Some do not have polyp stages, and some (such as hydra) do not have medusae. For some species, medusae remains attached to the polyp and is responsible for sexual reproduction; in extreme cases, these reproductive zooids may not be similar to medusae. Meanwhile, both Hydrozoa (Turritopsis dohrnii[28], Laodicea undulata[29]) and Scyphozoa (Aurelia sp.1[30]) experienced a life-cycle change in which polyps are formed directly from medusae, without involving the sexual reproduction process. Anthozoa is not in the medusa stage at all and polyps are responsible for sexual reproduction. [11] Spawning is usually determined by environmental factors, such as changes in water temperature, and their release is caused by lighting conditions such as sunrise, sunset or moon phase. Many species of Cnidaria can be spawned simultaneously in the same place to too many ova and sperm predators eat more than a tiny percentage – one famous example is the Great Barrier Reef, where at least 110 corals and some non-cnidarian invertebrates produce enough gamees to turn water into cloudy. These mass spawning can produce hybrids, some of which can solve and build polyps, but it is not known how long they can survive. In some species, ova emit chemicals that attract semen of the same species. [11] Fertilized eggs develop into larvae, dividing until there are enough cells to form a hollow ball (blastula), and then at one end there is depression (gastulation) and eventually becomes a digestive cavity. However, cnidarians depression forms at the end of the further out of the yolk (at the animal pole), while bilaterians do form at the other end (plant pole). [12] Larvae, called planulae, float or crawl with eyelashes. [11] They are cigar-shaped, but slightly wider at the front end, which is aboral, the plant pole ends up and eventually attaches to the base where the species is in the polyp stage. [12] Antozoan larvae are either large yolks or able to feed plankton, and some are already endosyimophotic algae that help feed them. As parents are stationary, these feeding capacities widen the range of larvae and prevent overcrowding of places. Scyphozoan and hydrozoan larvae are little yolk and most lack endosymbiotic algae, and therefore have to resolve quickly and metamorphoses into polyps. Instead, these species rely on their medusae to expand their range. [12] Asexual All known cnidaria can be reproduced asexually by various means, in addition to recovery after fragmentation. Hydrozoan polyps only bud, but some hydrozoa medusae can be broken down in the middle. Scyphozoan polyps can both bud and divide in the middle. In addition to both of these methods, Anthozoa can be divided horizontally just above the base. Aborn replica makes the daughter a cnidarian clone adult. [11] [12] Classification of Cnidarians for a long time was grouped with Ctenophores phylum Coelenterata, but raising awareness of their differences led them to insert into a separate phyla. Modern cnidarians are usually divided into four basic classes:[11] seated Anthozoa (sea anemones, corals, sea pens); swimming Scyphozoa (jellyfish) and Cubozoa (box jelly); and Hydrozoa, a diverse group that includes all freshwater cnidarians as well as many marine forms, and has both sedentary members such as Hydra and colonial swimmers such as Portugal's Man o' War. [31] Hydrozoa Scyphozoa Cubozoa Anthozoa Myxozoa Count 3,600 228 42 6,100 1300 Examples Hydra, siphonophoon Jellyfish Ulysses Marine anemones, corals, sea pens Myxobolus cerebralis Cells found mesoglea No Yes Yes No Yes Nematocists exodermia No Yes Yes Medusa phase life cycle Some species Yes Yes Yes No Number medusae produces on polyp Many many Single (not applicable) Stauromedusae, small strird cnidarians with stems and no medusa scene , traditionally classified as members of Scyphozoa , but recent studies have shown that they should be treated as a separate class, Staurozoa. [33] Myxozoa, microscopic parasites, was first classified as protozoa. [34] Studies have shown that polyphate hydrformide, which is not a Myxozoan parasite, is closely related to Myxozoa and suggested that both polycalyte and Myxozoa are intermediates between cnidarians and ambiators. [35] Recent studies have shown that previous identification of divaterian genes reflected the contamination of myxozoan samples with material from the host, and now they are strongly identified as severely derived cnidarians, and more closely related to Hydrozoa and Scyphozoa than with Anthozoa. [8] [31] [36] [37] Some researchers classify extinct conulariids as cnidarians, while others suggest that they form a completely separate phylum. [38] Current classification according to the World Register of Marine Species: Class Anthozoa Ehrenberg, 1834 subclass Ceriantharia Perrier, 1893 – Pipe dwelling anemone subclass Hexacorallia Haeckel, 1896 - rocky corals, 1866 - soft corals and sea fans, class Cubozoa Werner, 1973 - box jelly class Hydrozoa Owen, 1843 -- hydrozoans (fire corals, hydroids, hydroids, hydroid jelly, sifofofori...) class Myxozoa - minute polyli class Polypodiozoa Raikova, 1994 (indefinite status) class Scyphozoa Goette , 1887 - true jellyfish class Staurozoa Marques & Collins, 2004 - stalked jellyfish Cerianthus filiformis (Ceriantharia) Marine anemones (Actinaria, part of Hexacorallia) Coral Acropora muricata (Scleractinia, Part Hexacorallia) Marine fan Gorgonia ventalina (Alcyonacea, octocorallia part) Box jellyfishCarybdea branchi (Cubozoa) Siphonophore Physalia physali (Hydrozoa) Myxobolus cerebralis (Myxozoa) Polypedia hidrforme (Polypodiozoa) Jellyfish Phyllorhiza punctata (Scyphozoa) Stalked jelly Haliclystus antarctic (Staurozoa) Ecology Many cnidarians are only in shallow waters because they depend on endosimobiotic algae for much of their nutrients. Most are polyp stages that are only in places that offer a stable substrate for life cycles. However, the larger cnidarian groups contain species that have avoided these restrictions. Hydrozoans are global: some, like Hydra, live in fresh water; Obelia appears in the coastal waters of all oceans; and Liriope can make large in the middle of the ocean. Among anthozoans, some sclerotic corals, sea pens and marine fans live in deep, cold waters, and some marine anemones inhabit the polar seabed, while others live near hydrothermal vents above 10 km (33,000 ft) below sea level. Reef builders are limited to tropical seas between 30°N and 30°S with a maximum depth of 46 m (151 ft), temperatures between 20 and 28°C (68 and 82°F), high salinity, and low carbon dioxide. Stauromedusae, although usually classified as jellyfish, is a stalked, seated animal living in cool Arctic waters. [39] Cnidarians range from only a handful of cells in parasitic myxozoans [31] through hydra lengths of 5-20 mm (1-4-3,4 in),[40] to Lion mane jellyfish, which can exceed 2 m (6 feet 7 in) in diameter and 75 m (246 ft) in length. [41] Cnidarians prey from plankton to animals several times larger than themselves. [39] [42] Some cnidarians are parasites, mainly jellyfish, but some are the main pests of fish. [39] Others produce most of the feed from endosimiotic algae or dissolved nutrients. [11] Predators cnidarians include: sea slugs that can incorporate nematociss in their institution in self-defense; [43] star of the sea, in particular the crown of thorns of the star, which can devastate corals; [39] butterfly fish and parrot fish that eat corals; [44] and sea turtles that eat jellyfish. [41] Some marine anemonies and jellyfish have symbiotic relationships with certain fish; for example, clown fish live among marine anemones, and each partner protects the other against predators. [39] Coral reefs make up some of the world's most productive ecosystems. Common coral reef cnidarians include both Antozoans (hard corals, octocorals, anemones) and Hydrozoans (fire corals, lace corals). Endosimotic algae of many cnidarian species are very effective primary producers, in other words, organic substances that can be used by other organisms by the producers of inorganic chemicals, and their coral owners use these organic chemicals very effectively. In addition, reefs provide complex and diverse habitats that support a wide range of other organisms. [45] Fringing reefs just below the low level also have a win-win relationship with mangrove forests and seaweed meadows between: reefs protect mangroves and seaweed from strong currents and waves that could damage them or destroy the sediments they are rooted in, while mangroves and seaweeds protect coral from a large influx of warm, freshwater and pollutants. This additional level of breed environment is beneficial for various types of coral reef animals, which, for example, can feed seaweed and use reefs for protection or breeding. [46] Evolution of Ballast izsi_cietsisu on the kezeņu tide, Fossil coral Cladocora from Pliocene rocks in Cyprus Fossil record Formerly widely accepted animal fossils are fairly modern-looking cnidarians, probably from about 580 million years ago, although fossils from Doushantuo formation may have only dated roughly. [47] The identification of some of these animals as animal embryos is disputed, while other fossils from these stones are very reminiscent of tubes and other mineralised structures made up of corals. [48] Their presence meant that the cnidarian and bilaterian lines were already different. [49] Although Ediacaran's fossil Charnia was previously classified as a jellyfish or sea pen,[50] a recent study on growth patterns charnia and modern cnidarians has questioned this hypothesis,[51] [52], leaving only a Canadian polyp, Haootia, as the only bona-fide cnidarian body fossil from Ediacas. Only a few cnidarians fossils without mineralized skeletons are known from the newest stones, except lagerstätten, which is preserved in soft healthy animals. [53] Some mineralized fossils reminiscent of corals have been found in the rocks of the Cambrian period, and corals diversified in the Early Ordovician. [53] These corals that were wiped out in permian-triassic extinction about 251 million years ago[53] did not dominate reef construction sponges and algae also played a large part. [54] During the Mezozoic era rudist bivalves were the main reef builders, but they were wiped out in the cretaceous-paleogene extinction event 66 million years ago, [55], and since then the main reef builders have scleractinian corals. [53] Family Tree Details: Phylogeny It is difficult to reconstruct the early stages of the animal evolution family tree using only morphology (their shapes and structures), because the large differences between Porifera (sponges), Cnidaria plus Ctenophora (combs gels), Plazzozoa and Bilateria (all the most complex animals) make comparisons difficult. Consequently, reconstruction is now largely or entirely based on molecular phytogy, which groups organisms according to similarities and differences in their biochemistry, usually their DNA or RNA. [56] Illustrated cnidarians tree and their closest relatives Now it is generally believed that Calcarea (sponges with calcium carbonate spiculiem) are more closely related to Cnidaria, Ctenophora (comb gels) and Bilateria (all more complex animals) than other sponge groups. [57] [58] [59] In 1866, it was suggested that Cnidaria and Ctenophora were more closely related to each other than bilateria, and formed a group called Coelenterata (hollow guts) because Cnidaria and Ctenophora rely on water flow to and from one cavity for feeding, excretion and breathing. In 1881, it was proposed that Ctenophora and Bilateria be more closely related to each other common functions in cnidaria deficiency, such as muscle in the middle layer (mesoglea Ctenophora, mesoderm Bilateria). However, recent analyses show that these similarities are rather vague, and the current view based on molecular phytogenicity is that Cnidaria and Bilateria are more closely related to each other than they are in Ctenophora. This group of Cnidaria and Bilateria is labelled Planulozoa because it suggests that the former Bilateria was similar to cnidaria planula larvae. [2] [60] Cnidaria within Anthozoa (sea anemones and corals) is considered to be the rest of the nursing group, suggesting that the former cnidarians were sit-down polyps without medusa scene. However, it is not clear how other groups got the medusa scene, as Hydrozoa form medusae with budding from the side of the polyp, while others medusozoa do so by dividing them from the final polyp. The traditional scyphozoa group included Staurozoa, but morphology and molecular phylogenetics indicate that Staurozoa is more closely related to Cubozoa (a box of gels) than with other Scyphozoa. Similarities between the double body walls of Staurozoa and extinct Conulariida suggest that they are closely related. Anthozoa's position closest to the beginning of the cnidarian family tree also means that Anthozoa is the cnidarians most associated with Bilateria, and this is confirmed by the fact that Anthozoa and Bilateria share some of the genes that define the main axes of the body. [2] [61] However, in 2005 Katja Seipel and Volker Schmid suggested that cnidarians and ctenophores are simplified offspring of triploblastic animals, since some cnidarians medusa stage is a stale which bilaterians derive from mesodermia. They do not commit to whether bilaterians evolved from early cnidarians or from hypothesis to triploblastic ancestors of cnidarians. [13] In molecular phytic analysis from 2005 on, significant groups of developmental genes show the same variety of cnidarians as chordates. [62] In fact cnidarians, and especially anthozoans (marine anemones and corals), retain some genes present in bacteria, protists, plants and mushrooms, but not bilaterians. [63] The mitochondrial genome of medusozoan cnidarians, unlike other animals, is linear with fragmented genes. [64] The reason for this difference is unknown. Interaction with humans Dangerous Carukia barnesi, one of the known species box jellyfish, which can cause Irukandji syndrome. In the 20th century, around 1,500 people were killed,[65] and olezozos are particularly dangerous. On the other hand, some large jellyfish are considered a delicacie in East and Southeast Asia. Coral reefs have long been economically important because fishing against currents and tides, and more recently as tourist centers. However, they are vulnerable to overfishing, the extraction of building materials, pollution and the damage caused by tourism. The dangerous sea-backed Chironex fleckeri Beaches protected from tides and storms by coral reefs are often the best places for housing in tropical countries. Reefs are an important food source for low-tech fishing, both reefs themselves and adjacent seas. [66] However, despite their high productivity, reefs are vulnerable to overfishing, as much of their organic carbon is exhaled as carbon dioxide with organisms in the middle of the food chain and never reaches the largest species of interest to fishermen. [45] Tourism centred on reefs provides a large part of the income from some tropical islands, attracting photographers, divers and sports fishermen. However, human activity damages reefs in several ways: mining construction materials; pollution, including a large influx of fresh water from storm drains; commercial fishing, including the use of dynamite for stunning fish and the capture of young fish in aquariums; and tourism damage caused by boat anchors and the cumulative effect of walking on reefs. [66] Coral, mostly from the Pacific Ocean, has long used jewelry, and demand grew sharply in the 1980s.[67] Some large jellyfish species in rhizostomae order are commonly consumed in Japan, Korea and Southeast Asia. [68] [69] [70] The fishing industry has only days of daylight hours and calm conditions in two short seasons from March to May and August to November in different parts of the group. [70] The commercial value of jellyfish foods depends on the skills with which they are prepared and jellyfish masters carefully protect their trade secrets. Jellyfish have very low cholesterol and sugar, but a cheap preparation can introduce unwanted amounts of heavy metals. [71] The Chironex Fleckeri Sea Cup is described as the world's most venomous jellyfish and is held responsible for 67 deaths, although it is difficult to identify an animal because it is almost transparent. Most stingings with C. fleckeri cause only mild symptoms. [72] Seven other boxes of gels can cause a set of symptoms called Irukandji syndrome,[73], which takes about 30 minutes to develop,[74] and disappear from a few hours to two weeks. [75] Hospital treatment is usually required and there have been some deaths. [73] Several parasite myxozoans are commercially important pathogens in salmon aquaculture. Notes ^ Classes Medusozoa based on ITIS Report - Taxon: Subphylum Medusozoa. general taxonomic services. Retrieved 2018-03-18. Evolution of Medusozoa phylogeny and Cnidarian Life Cycles (PDF). Journal of Evolutionary Biology. 15 (3): 418–432. S2CID 11108911. Archived from original (PDF) 2006/09/22. Updated: 2008-11-27. (.) ↑ Subphyla Anthozoa and Medusozoa based on Taxonomicon – Taxon: Phylum Cnidaria. general taxonomic services. Archived from the original on 29 September 2007. Updated: 2007-07-10. (Ark) ↑ Steele, Robert E.; Technau, Ulrich (2011-04-15). The crossroads of evolutionary development in biology: Cnidaria. Development. 138 (8): 1447–1458. doi: 10.1242/dev.048959. PMC 3062418. Oxford English Dictionary (3rd ed.). Oxford University Press. september 2005. (A uk membership or membership is required.) ^ WoRMS - World Register of Marine Species. www.marinespecies.org. 2018-12-17. ↑ Dunn, Casey W.; Leys, Sally P.; Haddock, Steven H.D. (May 2015). Hidden biology sponges and ctenophores. Ecological and evolutionary trends. 30 (5): 282-291. doi: 10.1016/j.tree.2015.03.003. PMID 25840473. ↑ E. Jímenez-Guri; et al. (July 2007). Buddenbrockia is a cnidarian worm. Science. 317 (116): 116–118. Bibcode:2007Sci... Bibcode: 2007Sci ... 317..116J. doi:10.1126/science.1142024. PMID 17615357. ↑ Zapata F, Goetz FE, Smith SA, Howison M, Siebert S, Church SH, et al. Phylogomic analyses support traditional relationships within Cnidaria. PLOS ONE. 10 (10): e0139068. Bibcode:2015PLoSO. 1039068Z. doi:10.1371/journal.pone.0139068. PMC 4605497. ^ Park E, Hwang D, Lee J, Song J, SEO T, Won Y (January 2012). Assessment of the difference in time in cnidarian evolution based on mitochondrial protein coding genes and fossil record. Molecular phytofamily and evolution. 62 (1): 329-45. doi: 10.1016/j.ympev.2011.10.008. PMID 22040765. Cnidaria and Ctenophora. Anderson, D.T. (ed.). Invertebrate zoology. Oxford University Press. pages 28-57. Isbn 978-0-19-551368-4. Isbn 978-0-19-551368-4. ↑ A b c d e f g h i j k l m n o p q r s t u v w x y z aa ab ac Ruppert, E.E.; Fox, R.S. & Barnes, R.D. (2004). Invertebrate zoology (7 th). Brooks/Cole. pages 111–124. Isbn 978-0-03-025982-1. ↑ Seipel, K.; Schmid, V. (June 2005). Development of strung muscles: Jellyfish and the origin of triploblasty. Developmental biology. 282 (1): 14-26. doi: 10.1016/j.ydbio.2005.03.032. PMID 15936326. ↑ Ruppert, E.E.; Fox, R.S. & Barnes, R.D. (2004). Invertebrate zoology (7 th). Brooks/Cole. pages 182-195. Isbn 978-0-03-025982-1. ↑ Ruppert, E.E.; Fox, R.S. & Barnes, R.D. (2004). Invertebrate zoology (7 th). Brooks/Cole. p. 76–97. Isbn 978-0-03-025982-1. The poriff. Anderson, D.T. (ed.). Invertebrate zoology. Oxford Press. 10.–27. lpp. Isbn 978-0-19-551368-4. Isbn 978-0-19-551368-4. ↑ Boero, F.; B.B., B.; Piraino, S. (2007-06-01). Cnidarian pavērsieni metazoan evolūciju. Integrējoša un un Biology. 47 (5): 693-700. 21669750. ↑ Exposito, J-Y., Cluzel, C.; Garrone, R. & Lethias, C. (2002). Colongene development. Anatomical record part a: Discoveries molecular, cellular and evolutionary biology. 268 (3): 302-316. PMID 12382326. 12376172 . ↑ Ruppert, E.E.; Fox, R.S. & Barnes, R.D. (2004). Introduction to Metazoa. Invertebrate zoology (7 th). Brooks/Cole. p. 103–104. Isbn 978-0-03-025982-1.B. Genetic polymorphism. The Process of the Royal Society of London. Series B, Biology Sciences. 164. London: Faber & Faber. p. 350–61. doi:10.1098/rspb.1966.0037. doi: 10.1098/rspb.1966.0037. Isbn 978-0262060127. 978-0262060127. 202575235 . ↑ Dunn, Casey W.; Wagner, Günter P. (16 September 2006). Evolution of colony-level development of Siphonophora (Cnidaria: Hydrozoa). Developmental Genes and Evolution. 216 (12): 743-754. PMID 16983540. 2CID 278540. Brown, L. (2002). The Cnida. A shorter Oxford English dictionary. Oxford University Press. ^ A b Satterlie, Richard A. (April 15, 2011). Do jellyfish have a central nervous system?. Journal of Experimental Biology. 214 (8): 1215–1223. doi: 10.1242/or.043687. PMID 21430196. Neural Control Swim Jellyfish: Comparative story. Canadian Journal of Zoology. 80 (10): 1654-1669. doi: 10.1139/z02-132. ISSN 0008-4301. S2CID 18244609. ↑ Kass-Simon, G.; Pierobon, Paola (1 January 2007). Cnidarian chemical neurotransmission, updated review. Comparative biochemistry and physiology Part A: Molecular and integrative physiology. 146 (1): 9-25. doi: 10.1016/j.cbpa.2006.09.008. PMID 17101286. ↑ A b Jellyfish There are human-like eyes. www.livescience.com. April 1, 2007. Retrieved 2012-06-12. Hydroids. Sitting animals on the seashore. Springer. Page. ^ Bavestrello; et al. (1992). Two-way conversion turritopsis nutricula (Hydrozoa) (PDF). Scientia Marina. Updated: 2015-12-31. (2006). Evidence of reverse development of Leptomedusae (Cnidaria, Hydrozoa): Laodicea undulata (Forbes and Goodsir 1851). Marine biology. 149 (2): 339-346. S2CID 84325535. ↑ He; et al. of 21 December 2015. Life cycle change Aurelia sp.1 (Cnidaria, Scyphozoa). PLOS ONE. 10 (12): e0145314. Bibcode:2015PLoSO. 1045314H. doi:10.1371/journal.pone.0145314. PMC 4687044. ^ 20 November 2015. Microscopic parasite jellyfish defy everything we know to surprise scientists. Haaretz. Retrieved 4 April 2018. ^ Zhang, (2011). Animal biodiversity: introduction to higher levels of classification and taxonomic wealth (PDF). Zootaxa. 3148: 7–12. 7–12. ^ Collins, A.G.; Carth, P.; McFadden, C.S. & Schierwater, B. (2005). Phylogenetic Context and Basal Metazoan Model Systems. Integrative and comparative biology. 45 (4): 585-594. Actinomyxidies, nouveau groupe de Mesozoaires parent des Myxosporidies. Bull. Int. l'Acad. Sci Bohème. 12: 1–12. ↑ Zrzavý, J.; Hypša, V. (April 2003). Myxozoa, Polypodium, and the origin of Bilateria: the phylogenetic state of Endocnidozoa, given the new discovery of Buddenbrockia. Clastics. 19 (2): 164-169. doi: 10.1111/j.1096-0031.2003.tb00305.x. S2CID 221583517. ↑ E. Jímenez-Guri; Htk' HN/ ES. Buo, B; Holland, PW (July 2007). Buddenbrockia is a cnidarian worm. Science. 317 (116): 116–118. Bibcode:2007Sci... Bibcode: 2007Sci ... 317..116J. doi:10.1126/science.1142024. PMID 17615357. 04000. Neuhof, Moran; Niminstein, Nimrod D.; Arik, Arik; Aivars, Ové, Janis. Hučons, Dorothée; Cartwright, Paulyn (1 December 2015). Genomic insight into the evolutionary origin of Myxozoa in Cnidaria. Proceedings of the National Academy of Sciences. 112 (48): 14912–14917. Bibcode:2015PNAS.. 11214912C. doi:10.1073/pnas.1511468112. PMC 4672818. PMID 26627241. ↑ Conulariida. Museum of Paleontology, University of California. Retrieved 2008-11-27. Cnidaria (Coelenterates). Encyclopedia of Life Sciences. John Sally and the Sons. doi:10.1038/npg.els.0004117. doi: 10.1038/npg.els.0004117. Isbn 978-0470016176. Isbn 978-0470016176. ↑ Blaise, C.; Farard, J-F. (2005). Small-scale freshwater toxicity studies: toxicity test methods. Springer. p. 398. ISBN 978-1-4020-3119-9. Updated: 2008-11-21. (. 3 ↑ A b Safina, C. (2007). Macmillan. p. 154. ISBN 978-0-8050-8318-7. Isbn 978-0-8050-8318-7. Retrieved 2008-11-21. History of life (3 ed.). Blackwell. p. 54. Isbn 978-0-632-04444-3. Isbn 978-0-632-04444-3. Updated: 2008-11-21. (.3 ↑ Frick, K (2003). Predator Suites and Flabellinid Nudibranch Nematocyst are complemented by the Gulf of Main. In: SF Norton (Ed). Diving for science ... 2003 American Academy of Underwater Sciences (22nd Annual Scientific Diving Symposium). Retrieved 2008-07-03. Bellwood, D.R. (1998). Paxton, JR; Eschmeyer, W.N. (eds.). Encyclopedia of Fish. San Diego: Academic Press. pages 209-211. ISBN 978-0-12-547665-2. ↑ Barnes, R.S.K.; Mann, K.H. (1991). Basics of water ecology. Blackwell Publishing. pages 217-227. ISBN 978-0-632-02983-9. Retrieved 2008-11-26. Johann, R.E. & Robertson, A.J. (1989). Conservation of shallow aquatic ecosystems. Oceanography and Marine Biology: Annual Review: Volume 27. - Yes, 1900, p. 320. Isbn 978-0-08-037718-6. 2008-11-21. (. 3 ↑ Chen, J-Y.; Kayin, R; Li, CW; Zhou, GQ; Buo, F; Suyuuuuuuuuuuuuuuuuuuuuuu Arnk, KJ; Davidson, EH (25 aprīlis aprīlis Foam phosphatized embryos from Doushantuo China formation. Proceedings of the National Academy of Sciences. 97 (9): 4457–4462. Bibcode:2000PNAS... Bibcode: 2000PNAS... 97.4457C. doi:10.1073/pnas.97.9.4.4457. PMC 18256. PMID 10781044. ↑ Xiao, S.; Yuan, X. & Knoll, A.H. (5 December 2000). Eumetazoan fossils terminal Proterozoic phosphoryites?. Proceedings of the National Academy of Sciences. 97 (25): 13684–13689. Bibcode:2000PNAS... Bibcode: 2000PNAS... 9713684X. PMC 17636. PMID 11095754. ↑ Chen, J.-Y.; Kai, P.; Gao, F.; Dornbos, S.Q.; Suw, C-W.; Bottjer, D.J. & Davidson, EM (August 2002). Precambrian Animal Life: Possible Development and Adult Cnidarian Forms from Southwest China (PDF). Developmental biology. 248 (1): 182-196 doi:10.1006/dbio.2002.0714. doi: 10.1006/dbio.2002.0714. PMID 12142030. Archived from original (PDF) on 2008/09/11. Retrieved 2008-09-03. (3.06.2008) ↑ Donovan, Stephen K.; Lewis, David N. (2001). Fossils explained in 35. Ediacaran biota. Geology Today (abstract). 17 (3): 115–120. doi: 10.1046/j.0266-6979.2001.00285.x. ^ Antcliffe, J.B.; Brasier, M.D. (2007). Charnia and sea pens are poles apart. Journal of the Geological Society. 164 (1): 49–51. Bibcode:2007JGSoc.164... Bibcode: 2007JGSoc.164 ... 49A. doi:10.1144/0016-76492006-080. S2CID 130602154. ↑ Antcliffe, J.B.; Brasier, Martin D. (2007). Charnia At 50: Development Models by Ediacaran Fronds. Palaeontology. 51 (1): 11–26. ^ Cnidaria: Fossil Record. Museum of Paleontology, University of California. Retrieved 2008-11-27. The ancient expansion and collapse of the reef ecosystem. Coral reefs. 13 (1): 3–11. Bibcode:1994CorRe. 13....3C. doi:10.1007/BF00426428. S2CID 42938715. ↑ Rudists. Museum of Paleontology, University of California. Retrieved 2008-11-27.M. The new view animal phylogeny (PDF). Annual review of ecology, evolution, and systematic. 35: 229-256. Archived from original (PDF) 2008/10/07. Retrieved 2008-11-27. About, M.; Alivon, E.; Boury-Esnault, N.; Vacelet J. & Le Parco, Y. (January 2001). Sponge parafily and the origin of Metazoa. Journal of Evolutionary Biology. 14 (1): 171–179. doi: 10.1046/j.1420-9101.2001.00244.x. PMID 29280585. S2CID 25119754. S2CID 25119754. ↑ Medina, M.; Collins, A.G.; Silberman, J.D. & Sogin, ML (August 2001). Evaluation of basal animal phytin hypothesis using complete large and small subunit rRNA sequences. Proceedings of the National Academy of Sciences. 98 (17): 9707–9712. Bibcode:2001PNAS... Bibcode: 2001PNAS ... 98.9707M doi:10.1073/pnas.171316998. PMCC 55517. ^ Müller, W.E.G.; Aivars, J.; H.C Qiao, L. & Wang, X. (2007). The unique silicon sponge skeleton (Porifera; hexactinellida and Demospongiae) that evolved first from Urmetazoa during Proterozoic: Proterozoic: Proterozoic: (PDF). Biogesciences. 4 (2): 219–232. Bibcode:2007BGeo.... Bibcode: 2007BGeo .... 4..219M doi:10.5194/bg-4-219-2007. ^ Wallberg, A.; Mc McBearing, M.; Farris, J.S. and Jondelius, U. (2004). Phytoothic state of the comb gel (Ctenophora) and the role of the taxonomic sample. Clastics. 20 (6): 558-578. 2CID 86185156.C. Collins, A.G. (2004). Medusozoa and cnidarian evolutionary cladistic analysis. Invertebrate biology. 123 (1): 23-42. doi: 10.1111/j.1744-7410.2004.tb00139.x. Retrieved 2008-11-27. Ball, E.E. & Technau, U. (October 2005). The genetic complexity of cnidarians and ancestors in the animal kingdom. Trends in Genetics. 21 (10): 536–539. doi: 10.1016/j.tig.2005.08.002. PMID 16098631. ↑ Technau, U.; Rudd, S. & Maxwell, P (December 2005). Ancestral complexity and non-metazoan gene maintenance in two basal cnidarians. Trends in Genetics. 21 (12): 633-639. doi: 10.1016/j.tig.2005.09.007. PMID 16226338. ↑ Smith, D.R.; Kayal, E.; With excellent ear, A.A.; Collins, A.G.; S., S.; Keeling, P.J. (2011). First Complete Mitochondrial Genome Sequence from Box Jellyfish Reveals a very fragmented linear architecture and insight into Telomere Evolution. Genome biology and evolution. 4 (1): 52–58. PMC 3268669. PMID 22117085. ↑ Williamson, J.A.; M.S. Burt, J.V. & Rifkins, J. (1996). Poisonous and poisonous marine animals: Medical and biological manual. UNSW presses. p. 65–68. ISBN 978-0-86840-279-6. Isbn 978-0-86840-279-6. Retrieved 2008-10-03. Coastal Seas: Conservation challenge. Blackwell. pages 8-9. ISBN 978-0-632-04955-4. Updated: 2008-11-28. Springer. p. 63–65. ISBN 978-0-412-29270-5. Isbn 978-0-412-29270-5. Retrieved 2008-11-28. 2010. A consspekt in south-east Asia of edible jellyfish with notes on jellyfish fishing. Plankton and Benthic research. 5 (3): 106–118. ISSN 1880-8247. ↑ Omori, M.; Kitamura, M. (2004). Taxonomic overview of three Species of Japanese edible jellyfish (scofonou: Rhizostomeae). Plankton Biol. ^ Omori, M.; Nakano, E. (May 2001). Jellyfish fishing in Southeast Asia. Hydrobiologia. 451: 19–26. S2CID 6518460. ↑ Y-H. Peggy Hsieh; Fui-Ming Leong; Jellyfish as food. Hydrobiologia. 451 (1-3): 11-17. S2CID 20719121. ↑ Greenberg, M.I.; Hendrickson, R.G.; M., M.; Campbell, C. & A. (2004). Box Jellyfish envenomation. Greenberg's Text-Atlas of Emergency Medicine. Lippincott Williams & Wilkins. p. 875. ISBN 978-0-7817-4586-4. Isbn 978-0-7817-4586-4. ↑ Little, M.; Kai de, Pueira, Š.C.; Carrette, T. & Seymour, J. (June 2006). Jellyfish responsible for sindroms. QJM. 99 (6): 425–427. doi:10.1093/qjmed/hcl057. PMID 16687419. ↑ Barnes, J. (1964). Cēlonis un sekas Irukandji dzēsumi. Australijas Medicīnas Vēstnesis. 1 (24): 897–904. doi:10.5694/j.1326-5377.1964.tb114424.x. doi: 10.5694/ j.1326-5377.1964.tb114424.x. PMID 14172390. ↑ Grady J, Burnett J (2003. gada decembris). Irukandji līdzīgu sindromu South Florida ūdenslīdējus. Neatliekamās medicīnas ārņu. 42 (6): 763–6. doi:10.1016/S0196-0644(03)00513-4. doi: 10.1016/S0196-0644(03)00513-4. PMID 14634600. Tālāk lasot Grāmatas Arai, M.N. (1997). Funkcionālā bioloģija Scyphozoa. Londona: Chapman & Hall [p. 316]. Isbn 0-412-45110-7. Isbn 0-412-45110-7. Ax, P. (1999). Das System der Metazoa I. Ein Lehrbuch der phylogenetischen Systematik. Gustav Fischer, Stuttgart-Jena: Gustav Fischer. Isbn 3-437-30803-3. Isbn 3-437-30803-3. Barnes, R.S.K., P. Calow, P. J. W. Olive, D. W. Golding & J. I. Spicer (2001). Bezmugurkaulnieki- sintēze. Oksforda: Blekvels. 3. izdevums [3.4.2. nodaļa, 54. lpp.]. Isbn 0-632-04761-5. Isbn 0-632-04761-5. Brusca, R.C., G.J. Brusca (2003). Bezmugurkaulniekiem. Sunderland, Mass.: Sinauer Associates. 2. izdevums [8. nodaļa, 219. lpp.]. Isbn 0-87893-097-3. Isbn 0-87893-097-3. Sārbijs, A. (2003). Pārtikas Senajā pasaulē: no A līdz Z. Londonā: Routledge. Moore, J.(2001). Ievads bezmugurkaulniekiem. Cambridge: Cambridge University Press [4. nodaļa, 30. lpp.]. Isbn 0-521-77914-6. Isbn 0-521-77914-6. Šēfers, V. (1997). Suuuuuuuuuuuuuuuuuuuuuuuuuuuuu In Rieger, W. (ed.) Spezielle Zoologie. Teil 1. Teil 1. Einzeller und Wirbellose Tiere. Stuttgart-Jena: Gustav Fischer. Spektrum Akademischer Verl., Heidelberga, 2004. Isbn 3-8274-1482-2. Isbn 3-8274-1482-2. Werner, B. 4. Stamm Cnidaria. In: V. Gruner (ed.) Lehrbuch der speziellen Zoologie. Begr. von Kaestner. 2 Bde. 2 Bde. Stuttgart-Jena: Gustav Fischer, Stuttgart-Jena. 1954, 1980, 1984, Spektrum Akad. Verl., Heidelberga-Berlīne, 1993. 5. izdevums. Isbn 3-334-60474-8. Isbn 3-334-60474-8. Journal raksti D. Bridge, B. Schierwater, C. W. Cunningham, R. DeSalle R, LW Buss: Mitochondrial DNS struktūru un molekulāro fitoģiju nesen cnidaria klasēm. in: Filadelfijas Dabaszinātņu akadēmijas darba process. Philadelphia USA 89.1992, 8750. lpp. ISSN 0097-3157 D. Bridge, CW Cunningham, R. DeSalle, L. W. Buss: klases līmeņa attiecības phylum Cnidaria-Molekulāro un morfoloģisko pierādījumu. molekulārā bioloģija un evolūcija. Oxford University Press, Oksforda, 12.1995., 679. lpp. ISSN 0737-4038 D. G. Fautin: Cnidaria reprodukcija. in: Kanādas Vēstnesis Zoology. Ottawa Ont. 80.2002,, 1735. lpp. (PDF, tiešsaiste) ISSN 0008-4301 G. O. Mackie: Kas jauns cnidarian bioloģijā? in: Kanādas Vēstnesis Zoology. Ottawa Ont. 80.2002,, 1649. lpp. (PDF, tiešsaiste) ISSN 0008-4301 P. Schuchert: Cnidaria phylogenetic analīze. in: Zeitschrift für zoologische Systematik und Evolutionsforschung. Paray, Hamburga-Berlīne p. 161. ISSN 0044-3808 G. Kass-Simon, A. A. Scappaticci Jr. : Behavioral and Developmental Physiology of Nematocists. in: Canadian Journal of Zoology. Ottawa Ont. 80.2002, p. 1772. Page. issn 0044-3808 J. Zrzavý (2001). Metazoan parasite relationships: an overview of filum- and higher-level hypotheses from recent morphological and molecular phytogenic analyses. Folia Parasitologica. 48 (2): 81-103. doi: 10.14411/fp.2001.013. External links for Wikispecies are information related to Cnidaria Wikibook Dihotoms Key is a page on the topic: Cnidaria Wikimedia Commons is a media related to Cnidaria. Look up Cnidaria Wiktionary, a free dictionary. YouTube: Nematocysts Firing YouTube: My Anemone Eats Meat Protection and Feeding Behavior of The Marine Anemone Cnidaria - Guide to Sea Zooplankton in Southeast Australia, Tasmanian Aquaculture & Fisheries Institute A Cnidaria website maintained by the University of California, Irvine Cnidaria's Leaf Tree of Fossil Life Gallery: Cnrianidas Hydrozoa Directory Hexacorallians from the World Retrieved from