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,the free encyclopedia that anyone can edit.117,185 active editors 7,001,904 articles in EnglishThe English-language Wikipedia thanks its contributors for creating more than seven million articles! Learn how you can take part in the encyclopedia's continued improvement.Members of the victorious Blondie crewThe Boat Race 2018 took place on 24March. Held annually, The Boat Race is a side-by-side rowing race between crews from the universities of Oxford and Cambridge along a 4.2-mile (6.8km) tidal stretch of the River Thames in south-west London, England. For the third time in the history of the event, the men's, the women's and both reserves' races were all held on the Tideway on the same day. The women's race saw Cambridge lead from the start, eventually winning by a considerable margin to take the overall record to 4330 in their favour. In the women's reserve race, Cambridge's Blondie (crew pictured) defeated Oxford's Osiris by nine lengths. The men's reserve race was won by Cambridge's Goldie, who defeated Oxford's Isis by a margin of four lengths. The men's race was the final event of the day and completed a whitewash as Cambridge won, taking the overall record to 8380 in their favour. The races were watched by around 250,000 spectators live, and broadcast around the world. (Fullarticle...)Recently featured: Radar, Gun Laying, Mk.I and Mk.IIAndrea NavageroNosy KombaArchiveBy emailMore featured articlesAboutKitty Marion... that Kitty Marion (pictured) was force-fed over 200 times during a hunger strike?... that the North Korean destroyer Choe Hyon is the largest ship constructed for the Korean People's Navy?... that after the release of High and Low, director Akira Kurosawa received telephone calls imitating his film that threatened to kidnap his daughter?... that May Bradford Shockley is why Silicon Valley is where it is?... that the conservation of a goat might endanger the survival of Aquilegia paui?... that Joy Laking predicted in a school writing assignment that within ten years she would be making a living as an artist?... that the Taiwanese restaurant chain Formosa Chang drew inspiration from McDonald's for its non-greasy atmosphere and corporate practices?... that Haridas Mitra had his death sentence commuted after the intervention of Mahatma Gandhi?... that "Steve's Lava Chicken" recently became the shortest song to enter the UK Top 40?ArchiveStart a new articleNominate an articleNgg wa Thiong'oKenyan writer and activist Ngg wa Thiong'o (pictured) dies at the age of 87.In sumo, nosato Daiki is promoted to yokozuna.In association football, Liverpool win the Premier League title.In motor racing, lex Palou wins the Indianapolis 500.In basketball, the EuroLeague concludes with Fenerbahe winning the Final Four Playoff.Ongoing: Gaza warM23 campaignRussian invasion of UkrainetimelineSudanese civil wartimelineRecent deaths: Harrison Ruffin TylerPhil RobertsonMary K. GaillardPeter DavidAlan YentobGerry ConnollyNominate an articleMay 31: Dragon Boat Festival in China and Taiwan (2025); World No Tobacco DayBessarion455 Petronius Maximus, the ruler of the Western Roman Empire, was stoned to death by a mob as he fled Rome ahead of the arrival of a Vandal force that sacked the city.1223 Mongol invasion of Kievan Rus': Mongol forces defeated a Kievan Rus' army at the Battle of the Kalka River in present-day Ukraine.1468 Cardinal Bessarion (pictured) announced his donation of 746 Greek and Latin codices to the Republic of Venice, forming the Biblioteca Marciana.1935 A magnitude-7.7 earthquake struck Balochistan in British India, now part of Pakistan, killing between 30,000 and 60,000 people.2013 An extremely large, powerful, and erratic tornado struck Central Oklahoma, killing eight people and injuring more than 150 others.Albertino Mussato (d.1329)Joseph Grimaldi (d.1837)Dina Boluarte (b.1962)Mbaye Diagne (d.1994)More anniversaries: May 30May 31June 1ArchiveBy emailList of days of the yearAboutCucumis metuliferus, the African horned cucumber, is an annual vine in the cucumber and melon family, Cucurbitaceae. Its fruit has horn-like spines, hence the name "horned melon". The ripe fruit has orange skin and lime-green, jelly-like flesh. It is native to Southern Africa, where it is a traditional food. Along with the gemsbok cucumber and the citron melon, it is one of the few sources of water during the dry season in the Kalahari Desert. This photograph, which was focus-stacked from 25 separate images, shows two C.metuliferus fruits, one whole and the other in cross-section.Photograph credit: Ivar LeidusRecently featured: Ignace TonenAustralian white ibisHell Gate BridgeArchiveMore featured picturesCommunity portal The central hub for editors, with resources, links, tasks, and announcements.Village pump Forum for discussions about Wikipedia itself, including policies and technical issues.Site news Sources of news about Wikipedia and the broader Wikimedia movement.Teahouse Ask basic questions about using or editing Wikipedia.Help desk Ask questions about using or editing Wikipedia.Reference desk Ask research questions about encyclopedic topics.Content portals A unique way to navigate the encyclopedia.Wikipedia is written by volunteer editors and hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other volunteer projects: CommonsFree media repository MediaWikiWiki software development Meta-WikiWikimedia project coordination WikibooksFree textbooks and manuals WikidataFree knowledge base WikinewsFree-content news WikiquoteCollection of quotations WikisourceFree-content library WikispeciesDirectory of species WikiversityFree learning tools WikivoyageFree travel guide WiktionaryDictionary and thesaurusThis Wikipedia is written in English. Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles DeutschEspaolFranaisItalianoNederlandsPolskiPortugusSvenskaTing Vit 250,000+ articles Bahasa IndonesiaBahasa MelayuBn-lm-gCataletinaDanskEestiEsperantoEuskaraMagyarNorsk bokmlRomnSimple EnglishSloveninaSrpskiSrpskohrvatskiSuomiTrkeOzbekcha 50,000+ articles AsturianuAzrbaycancaBosanskiFryskGaeilgeGalegoHrvatskiKurdLatvieuLietuviNorsk nynorskShqipSlovenina Retrieved from " 2This article is about the year 455. For other uses, see 455 (disambiguation).This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources:"455"news newspapers books scholar JSTOR (April 2019) (Learn how and when to remove this message)Calendar yearYearsMillennium1stmillenniumCenturies4thcentury5thcentury 6thcenturyDecades430s440s450s 460s470sYears452453454455 456457458vte455 by topicLeadersPolitical entitiesState leadersReligious leadersCategoriesBirthsDeathsDisestablishmentsvte455 in various calendarsGregorian calendar455CDLVAb urbe condita1208Assyrian calendar5205Balinese saka calendar376377Bengali calendar139 138Berber calendar1405Buddhist calendar999Burmese calendar183Byzantine calendar59635964Chinese calendar (WoodHorse)3152 or 2945to (WoodGoat)3153 or 2946Coptic calendar171172Discordian calendar1621Ethiopian calendar447448Hebrew calendar42154216Hindu calendars- Vikram Samvat511512- Shaka Samvat376377- Kali Yuga35553556Holocene calendar10455Iranian calendar167 BP 166 BPIslamic calendar172 BH 171 BHJavanese calendar340341Julian calendar455CDLVKorean calendar2788Minguo calendar1457 before ROC1457Nanakshahi calendar1013Seleucid era766/767 AGThai solar calendar997998Tibetan calendar(male Wood-Horse)581 or 200 or 572to(female Wood-Goat)582 or 201 or 571King Generic sacks Rome (455)Year 455 (CDLV) was a common year starting on Saturday of the Julian calendar. At the time, it was known as the Year of the Consulship of Valentinianus and Anthemius (or, less frequently, year 1208 Ab urbe condita). The denomination 455 for this year has been used since the early medieval period, when the Anno Domini calendar era became the prevalent method in Europe for naming years.March 16 Emperor Valentinian III, age 35, is assassinated by two Hunnic retainers of the late Flavius Aetius, while training with the bow on the Campus Martius (Rome), ending the Theodosian dynasty. His primicerius sacri cubiculi, Heraclius, is also murdered.March 17 Petronius Maximus, former domesticus ("elite bodyguard") of Aetius, becomes (with support of the Roman Senate) emperor of the Western Roman Empire. He secures the throne by bribing officials of the imperial palace. Maximus consolidates his power by a forced marriage with Licinia Eudoxia, widow of Valentinian III.Maximus appoints Avitus, most trusted general, to the rank of magister militum and sends him on an embassy to Toulouse, to gain the support of the Visigoths. He elevates his son Palladius to Caesar and has him marry Eudocia, eldest daughter of Valentinian III.May 31 Maximus is stoned to death by an angry mob while fleeing Rome. A widespread panic occurs when many citizens hear the news that the Vandals are plundering the Italian mainland.June 2 Sack of Rome: King Genseric leads the Vandals into Rome, after he has promised Pope Leo I not to burn and plunder the city. Genseric sacks the city for a period of two weeks. Eudoxia and her daughters, Eudocia and Placidia, are taken hostage. The loot is sent to the harbour of Ostia and loaded into ships, from whence the Vandals depart and return to Carthage.July 9 Avitus is proclaimed Roman emperor at Toulouse, and later recognised by the Gallic chiefs in Viernum (near Arles).September 21 Avitus enters Rome with a Gallic army. He restores the imperial authority in Noricum (modern Austria) and leaves a Gothic force under Remistus, Visigoth general (magister militum), at Ravenna.The Ostrogoths conquer Pannonia and Dalmatia.Battle of Aylesford: Prince Vortimer rebels against the pro-Anglo-Saxon policies of his father, Vortigern. He is defeated in the battle at Aylesford (Kent). Hengist and his son Oisc become king of Kent. Horsa and Catigern, brother of Vortimer, are killed. The Britons withdraw to London (according to the Anglo-Saxon Chronicle).Skandagupta succeeds Kumaragupta I as ruler of the Gupta Empire (India). During his reign he crushes the Hun invasion; however, the expense of the wars drains the empire's resources and contributes to its decline.Gaero becomes king of the Korean kingdom of Baekje.[1]Earliest recorded date at Chichen Itza on the Yucatn Peninsula (Mexico) (approximate date).Barter economy replaces organized trade as Romans and other citizens desert their towns for the countryside, where they will be less vulnerable to barbarian raids (approximate date).The city of Vindobona (Vienna) is struck by an epidemic that spreads through the Roman provinces. The disease is probably streptococcus or a form of scarlet fever with streptococcus pneumoniae (approximate date).Rusticus, archbishop of Lyon (approximate date)Wang Baoming, empress of the Southern Qi (d. 512)March 16Valentinian III, emperor of the Western Roman Empire (b. 419)Heraclius, Roman courtier (primicerius sacri cubiculi)May 31 Petronius Maximus, emperor of the Western Roman EmpireBiyu of Baekje, king of Baekje[1]Catigern, prince and son of Vortigern (approximate date)Horsa, leader of the Anglo-Saxons (approximate date)Kumaragupta I, ruler of the Gupta Empire (India)Niall Noigiallach, High King of Ireland (approximate date)Palladius, son of Petronius Maximus (approximate date)Prosper of Aquitaine, disciple and Christian writer (approximate date)^ a b "List of Rulers of Korea". www.metmuseum.org. Retrieved April 20, 2019.Retrieved from " 3One hundred years, from 301 to 400Millennia1stmillenniumCenturies3rdcentury4thcentury5thcenturyTimelines3rdcentury4thcentury5thcenturyState leaders3rdcentury4thcentury5thcenturyDecades300s310s320s330s340s350s360s370s380s390sCategories:Births Deaths Establishments DisestablishmentsvteEastern Hemisphere at the beginning of the 4th century CE.Eastern Hemisphere at the end of the 4th century CE.The 4th century was the time period from 301 CE (represented by the Roman numerals CCCI) to 400 CE (CD) in accordance with the Julian calendar. In the West, the early part of the century was shaped by Constantine the Great, who became the first Roman emperor to adopt Christianity. Gaining sole reign of the empire, he is also noted for re-establishing a single imperial capital, choosing the site of ancient Byzantium in 330 (over the current capitals, which had effectively been changed by Diocletian's reforms to Milan in the West, and Nicomedeia in the East) to build the city soon called Nova Roma (New Rome); it was later renamed Constantinople in his honor.The last emperor to control both the eastern and western halves of the empire was Theodosius I. As the century progressed after his death, it became increasingly apparent that the empire had changed in many ways since the time of Augustus. The two-emperor system originally established by Diocletian in the previous century fell into regular practice, and the east continued to grow in importance as a centre of trade and imperial power, while Rome itself diminished greatly in importance due to its location far from potential trouble spots, like Central Europe and the East. Late in the century Christianity became the official state religion, and the empire's old pagan culture began to disappear.[citation needed] General prosperity was felt throughout this period, but recurring invasions by Germanic tribes plagued the empire from 376[1][2] CE onward. These early invasions marked the beginning of the end for the Western Roman Empire.In China, the Jin dynasty, which had united the nation prior in 280, began rapidly facing trouble by the start of the century due to political infighting, which led to the insurrections of the northern barbarian tribes (starting the Sixteen Kingdoms period), which quickly overwhelmed the empire, forcing the Jin court to retreat and entrench itself in the south past the Yangtze river, starting what is known as the Eastern Jin dynasty around 317. Towards the end of the century, Emperor of the Former Qin, Fu Jin, united the north under his banner, and planned to conquer the Jin dynasty in the south, so as to finally reunite the land, but was decisively defeated at the Battle of Fei River in 383, causing massive unrest and civil war in his empire, thereby leading to the fall of the Former Qin, and the continued existence of the Eastern Jin dynasty.According to archaeologists, sufficient archaeological evidence correlates of state-level societies coalesced in the 4th century to show the existence in Korea of the Three Kingdoms (300/400668 CE) of Baekje, Goguryeo, and Silla.Historians of the Roman Empire refer to the "Long Fourth Century" to the period spanning the fourth century proper but starting earlier with the accession of the Emperor Diocletian in 284 and ending later with the death of Honorius in 423 or of Theodosius II in 450.[3]See also: Christianity in the 4th centuryGregory the Illuminator mosaic, converted Armenia from Zoroastrianism to ChristianityContemporary bronze head of Constantine I (r. 306337 AD)Early 4th century Former audience hall now known as the Basilica, Trier, Germany, is built.Early 4th century The Gupta Empire is established.301: Armenia first to adopt Christianity as state religion.304439: The Sixteen Kingdoms in China begins.306337: Constantine the Great, ends persecution of Christians in the Roman Empire (see also Constantinian shift) and Constantinople becomes new seat of government (New Rome).Tikal had a population of about 100,000 when it was conquered by Teotihuacan, less than a fourth of its peak population[4]320: Butuan Boat One, the oldest known Balangay, a multi-purpose ship native to the Philippines is built.325328: The Kingdom of Aksum adopts Christianity.325: Constantine the Great calls the First Council of Nicaea to pacify Christianity in the grip of the Arian controversy.335380: Samudragupta expands the Gupta Empire.337: Constantine the Great is baptized a Christian on his death bed.350: About this time the Kingdom of Aksum conquers the Kingdom of Kush.350400: At some time during this period, the Huns began to attack the Sassanid Empire.[2]350: The Kutai Martadipura kingdom in eastern Borneo produced the earliest known stone inscriptions in Indonesia known as the Mulavarman inscription written in the Sanskrit language using Pallava scripture.[5]Mid-4th century Dish, from Mildenhall, England, is made. It is now kept at the British Museum, London.Mid-4th century Wang Xizhi makes a portion of a letter from the Feng Ju album. Six Dynasties period. It is now kept at National Palace Museum, Taipei, Taiwan, Republic of China.365: An earthquake with a magnitude of at least eight strikes the Eastern Mediterranean. The following tsunami causes widespread destruction in Crete, Greece, Libya, Egypt, Cyprus, and Sicily.376: Visigoths appear on the Danube and are allowed entry into the Roman Empire in their flight from the Huns.378: Battle of Adrianople: Roman army is defeated by the Visigoth cavalry. Emperor Valens is killed.378395: Theodosius I, Roman emperor, bans pagan worship, Christianity is made the official religion of the Empire.378: Siyaj K'ak' conquers Waka on (January 8), Tikal (January 16) and Uaxactun.Wall painting of the Council of Constantinople (381) in the Stavropoleos monastery, Romania381: First Council of Constantinople reaffirms the Christian doctrine of the Trinity by adding to the creed of Nicaea.383: Battle of Fei River in China.395: The Battle of Canhe Slope occurs.395: Roman emperor Theodosius I dies, causing the Roman Empire to split permanently.Late 4th century: Cubiculum of Leonis, Catacomb of Commodilla, near Rome, is made.Late 4th century: Atrium added in the Old St. Peter's Basilica, Rome.For a more comprehensive list, see Timeline of historic inventions 4th century.The Stirrup was invented in China, no later than 322.[6][1]Kama Sutra, dated between c.400 BC to c. 300 AD.[7][8]Iron pillar of Delhi, India is the world's first Iron Pillar.[citation needed]Trigonometric functions: The trigonometric functions sine and versine originated in Indian astronomy.[9]Codex Sinaiticus and the Codex Vaticanus Graecus 1209, are the earliest Christian bibles.[10][11]Book of Steps, Syriac religious discourses.[citation needed]^ a b "The invention and influences of stirrup". Archived from the original on December 3, 2008.^ a b Roberts, J: "History of the World". Penguin, 1994.^ The Long Fourth Century 284450: Continuity and Change in the Later Roman Empire ed. S. McGill, C. Sogno and E. Watts (Cambridge 2008).^ "The Maya: Glory and Ruin". National Geographic Magazine. Archived from the original on April 9, 2008.^ "The Austronesians: Historical and Comparative Perspectives". ANU Press. Archived from the original on 2013-12-25. Retrieved 2013-04-29.^ Lee, Adela C.Y. "The stirrup and its effect on chinese military history". Silkroad Foundation.^ Sengupta, J. (2006). Refractions of Desire, Feminist Perspectives in the Novels of Toni Morrison, Michle Roberts, and Anita Desai. Atlantic Publishers & Distributors. p.21. ISBN978-81-269-0629-1. Archived from the original on 4 May 2016. Retrieved 7 December 2014.^ Kakar, Sudhir; Doniger, Wendy (2003). Kamasutra. Oxford; Toronto: Oxford University Press. pp.xi. ISBN978-0-19-283982-4.^ Bag, A.K. (1979). 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Retrieved 16 March 2013.Retrieved from " 4The following pages link to 4th century External tools(link counttransclusion countsorted list) See help page for transcluding these entriesShowing 50 items.View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)List of decades, centuries, and millennia (links | edit)Religion in pre-Islamic Arabia (links | edit)Rosetta Stone (links | edit)20th century (links | edit)15th century (links | edit)16th century (links | edit)17th century (links | edit)18th century (links | edit)14th century (links | edit)1st century (links | edit)13th century (links | edit)397 (links | edit)12th century (links | edit)11th century (links | edit)7th century (links | edit)10th century (links | edit)9th century (links | edit)8th century (links | edit)6th century (links | edit)5th century (links | edit)3rd century (links | edit)2nd century (links | edit)405 (links | edit)4th century BC (links | edit)432 (links | edit)200s (decade) (links | edit)300s (decade) (links | edit)1st century BC (links | edit)2nd century BC (links | edit)3rd century BC (links | edit)5th century BC (links | edit)6th century BC (links | edit)400s (decade) (links | edit)310s (links | edit)320s (links | edit)321 (links | edit)21st century BC (links | edit)11th century BC (links | edit)286 (links | edit)476 (links | edit)385 (links | edit)7th century BC (links | edit)410 (links | edit)325 (links | edit)380s (links | edit)381 (links | edit)470s (links | edit)430s (links | edit)430 (links | edit)510s (links | edit)View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Retrieved from " WhatLinksHere/4th_century"Ever stumbled when pronouncing the name of a medication? Or watched a pharmaceutical ad on TV and wondered, Who comes up with these names?Theyre often a mouthful and may seem totally random. So, you might be surprised to learn that just as theres a science and process behind developing medications, theres also a science and process behind naming them.A medications name plays a key role in patient safety, says family medicine specialist, Neha Vyas, MD. Drug names that are too similar can lead to a patient receiving the wrong medication. This type of medication error can be life-threatening.Dr. Vyas walks us through the science behind medication names.Whats in a drug name?The U.S. Food and Drug Administration (FDA) approved 55 new drugs in 2023. But before they hit the market, pharmaceutical companies had to take several steps to find names for each of them that met strict U.S. and international requirements.Its a selection process that sometimes takes up to four years and a lot of money. According to some estimates, drug companies can pay outside consulting firms up to half a million dollars for their help naming new medications.And heres something else you probably didnt know: By the time a brand-name medication becomes available, its actually on its third name. Thats because each medication name goes through a unique vetting process that includes a:Chemical drug nameGeneric drug nameBrand drug nameThe birth and naming of a new medicationDuring the initial laboratory development stage, a drugs name reflects its chemical makeup. For instance, N-(4-hydroxyphenyl) acetamide is the chemical name for:Acetaminophen (generic drug name)Tylenol (brand drug name)Unless you work in drug development or medicine, youll probably never hear the scientific name. Still, companies must follow rules set by the International Union of Pure and Applied Chemistry when creating a chemical drug name.The science behind generic drug namesDrugs get their generic names when theyre ready for testing in a clinical trial, and the process for naming generic drugs has been in place since the early 1960s.Drug companies file three to six generic name suggestions with the United States Adopted Name (USAN) Council. Members of the American Medical Association, American Pharmacists Association and U.S. Pharmacopeia make up this council.A generic drug always goes by the same name worldwide. Thats why the World Health Organizations International Nonproprietary Names (INN) expert group also has a say.A universal generic name ensures that healthcare providers anywhere in the world will know the drug, even if the brand name is different, Dr. Vyas explains. It lowers the risk of a patient getting the wrong medication if theyre in a different country.Choosing a generic drugs suffixComing up with a name for a generic drug is a bit easier than naming a brand drug.Generic drug names follow a formula, Dr. Vyas shares. The drug names suffix, or stem, must reflect how the drug works on the body.For instance, generic drugs that end in:-oxetine (fluoxetine and paroxetine) are selective serotonin reuptake inhibitors (SSRIs) that treat mood disorders.-prazole (omeprazole and esomeprazole) are proton pump inhibitors for acid reflux.Choosing a generic drugs prefixCompanies can get more creative with the one- to two-syllable prefix. But there are some things the prefix cant do, like:Have the letters H, J, K, W or Y because some world languages dont use those lettersLook or sound similar to other generic drugs that share the same suffixReflect or promote the name of the drug companyUse medical terms, like onco for a cancer (oncology) drugApproving a generic drug nameBefore granting approval, USAN and INN consider whether a generic drug name:Is easy to pronounce and rememberHas a suffix that accurately reflects what the drug doesTranslates well into non-English languagesHow brand drugs get their namesPharmaceutical companies invest a lot of resources into developing a new drug. Theyre like the companys baby and just like expectant parents, they scrap hundreds of potential names, weeding out ones that arent quite right.Why? Because the brand name matters. Healthcare providers and patients will associate the name with that trademarked drug for life.Some drug names like Prozac and Viagra have become so commonplace that they now appear in dictionaries, notes Dr. Vyas. Theyre now seen as synonymous with a particular health condition.Focus groups and other research methods help companies home in on their top choice from as many as 200 drug names under consideration. It might not always seem like it, but companies try to choose names that are easy to pronounce in different languages. They also make sure that a translated name doesnt mean something offensive.Often, companies try to come up with a brand name that somehow reflects what the drug does. For example:Viagra, which treats erectile dysfunction, is a combination of vigor (a word that reflects potency and stamina) plus Niagara (a reference to a steady stream or Niagara Falls).Lyrica, which treats nerve pain, evokes soothing music lyrics (like the soothing of nerves).Approving a brand drug nameDrug companies can submit only one brand name to the FDA for approval, and they can submit two names to the European Medicines Agency (EMA). While drug companies hope the two organizations agree on the same name, they dont have to. In India, for instance, the statin drug Lipitor goes by the name Atocor.The FDA and EMA require that a brand drug name doesnt:Look or sound similar to other brand drugsMake medical claims, like using the word rapid to imply that the drug works faster than othersUse a generic suffix or too closely resemble the generic drug namePromote the drugmakerIf the FDA or EMA rejects a drug name, pharmaceutical companies must go back to the drawing board. Selecting another name means more time and money, which delays the drugs entry into the market.A drug by any other nameIt might seem like pharmaceutical companies are trying to create tongue-twisters, but in fact, the opposite is true.Companies want a drug name thats easy to say and remember, Dr. Vyas reiterates. Their hope is that youll ask your provider about it after you see an ad or that youll tell your friends about the new medication thats worked for you.IBRANCE. Xeljanz. Sildenafil. Viagra.Most Americans have heard of at least one of those drug names. But where do those monikers come from? Is it scientific? Metaphorical? Both?The drug-naming process is one thats long and involved, whether a company is devising a generic name or a brand name (there are different processes for each). In fact, according to Michael Quinlan, who is senior manager, trademark development, within the Customer Analytics & Insights group with Pfizer, naming a drug can be a long and laborious process that begins before the drug, itself, has been approved by the FDA. In most industries, you create a name for the product and as long as the trademark is considered available you can start using that name on your product, says Quinlan. But the drug name has to get reviewed and be considered safe before itll be approved to be used on that potential product.In some cases, Quinlan says it can take four years to go through the name selection and approval process. Still, he says, the exercise can be fun. Youre getting to name the baby, he says. And that name could be around for generations.In this two-part series, well look at how drugs get both their generic and brand names.The early daysIt starts with a compound. Like anyone or anything, drugs need labels in order to distinguish them from one another. Marie-ClairePeakman, PhD., executive director of the Primary Pharmacology Group in Worldwide Research & Development with Pfizer explains that in the early days, chemists register a newly synthesized compound in a database, labeling it with PFwhich stands for Pfizerfollowed by 10 numbers (for example, PF-04965842-01). When the chemists first make up compounds, they have to register them in the database as soon as theyre identified so that we can identify them and keep track of their performance in our studies, says Peakman. If a compound shows enough promise to make it through early experiments and head towards clinical trials, two naming processes begin to devise a generic name and a brand name for the future drug.How generic drugs get their generic namesThe first step in coming up with a name for a drug is selecting its generic, or non-proprietary name. The generic-naming process arose in the 1950s, says Quinlan, as a way of establishing a standard so that drugs had the same name everywhere. Generic names came about because of the world growing smaller, says Quinlan. People were traveling abroad more frequently, and it became clear that in other countries, their drugs might be known by another name than back home and would not be able to be identified. Today, two different organizations must approve the names of generic drugs the United States AdoptedNames(USAN) Council and the World Health Organization (WHO) INN Programmeso that regardless of where someone is located, patients and health care professionals will be able to safely communicate about medications.Generic names are, in part, based on a formula. The suffix, or, as Quinlan calls it, the family name, imparts an important piece of information to health care professionals about how the substance works in the body. Take Viagra, for example. Its generic name is sildenafil. The suffix, afil, explains the way it works, says Quinlan, referring to its role as a PDE 5 inhibitor, meaning it helps control blood flow. Afil is also the suffix of other erectile dysfunction generics, such as tadalafil(Cialis), vardenafil (Levitra and Staxyn) and avanafil (Stendra).The prefix gets a little more creative. We look for syllables that obviously are different from other existing generic names and that are pleasant enough in their tonality or appearance so it doesnt become overly complex to try to pronounce the generic name, says Quinlan.Celecoxib. Quinapril. Ziprasidone.When devising those names, there are a number of rules that apply. Quinlan shared some of those rules:It must use two syllables in the prefix. This will help distinguish the drug from others, and allows for more variety.It must avoid certain letters. The generic drug name is created using the Roman alphabet, and the goal is to create a name that can be communicated globally. Because the letters Y, H, K, J, and W arent used in certain languages that use the Roman alphabet, they arent used in the creation of the prefix of the name.It cant be considered marketing. Using the companys name within the drugs name must be avoided. Also, its important to stay away from superlatives or laudatory terms (best, new, fastest, strongest) that could be considered promotional.It avoids medical terminology. You dont want to imply that a drug is intended only for one particular function, because in time, if it is also helpful for another purpose, the name could be reductive. Say you were developing a treatment for oncology indications and you launched a product for those indications, but over time in further research you discovered it worked on inflammation and immunology indications. If you had something like Onc- in the beginning of your generic name that would be very limiting, says Quinlan.When the team has three to six names they like, it submits them to USAN Council, which is made up of representatives from the American Medical Association (AMA),United States Pharmacopeia(USP) and theAmerican Pharmacists Association(APhA). Sometimes, its a success and one of the names is accepted. Other times, USAN declines to accept the names, and counter proposes a name of its choosing, which Pfizer can then choose to screen and accept.When a name is accepted, USAN then submits it on behalf of Pfizer to the WHO, where a committee reviews it and decides whether to accept it or, again, counter propose a different name. When the WHO accepts a name, its published on a proposed International Nonproprietary Names (INN) list, and, over the course of four months, the public can come forward and object to the name. If no one objects, it publishes to a recommended INN list and Pfizer can start referring to the drug by the nonproprietary name, rather than by code.Want to know how branded drugs are named? Check out part two on how branded drugs are named.. For millions of patients around the world, the development of a new treatment or vaccine can be life-changing. For millions of patients around the world, the development of a new treatment or vaccine can be life-changing. Pfizer is proud of its commitment to advancing hemophilia care for more than 40 years, dating back to the introduction of recombinant therapies. Pfizer is proud of its commitment to advancing hemophilia care for more than 40 years, dating back to the introduction of recombinant therapies. About Pfizer's initiative to make clinical trials more participant-friendly through the decentralized "Clinical Trial Anywhere" model; a suite of solutions like remote sample collection, alternative study conduct locations, home health, and mobile units to reduce the need for in-person visits. About Pfizer's initiative to make clinical trials more participant-friendly through the decentralized "Clinical Trial Anywhere" model; a suite of solutions like remote sample collection, alternative study conduct locations, home health, and mobile units to reduce the need for in-person visits. Artificial intelligence (AI) has quietly become a part of our daily lives through personalized recommendations, virtual assistants, or smart devices, we barely notice it anymore. Artificial intelligence (AI) has quietly become a part of our daily lives through personalized recommendations, virtual assistants, or smart devices, we barely notice it anymore. Despite significant advancements in hemophilia treatments over the past several decades, balancing management of the disorder while maintaining regular day-to-day activities remains a challenge. Despite significant advancements in hemophilia treatments over the past several decades, balancing management of the disorder while maintaining regular day-to-day activities remains a challenge. Medication used to treat a viral infection"Antiviral" redirects here. For other uses, see Antiviral (disambiguation)."Antiviral Therapy" redirects here. For the academic journal, see Antiviral Therapy (journal).Antiretroviral drugs for HIVAntiviral drugs are a class of medication used for treating viral infections.[1] Most antivirals target specific viruses, while a broad-spectrum antiviral is effective against a wide range of viruses.[2] Antiviral drugs are a class of antimicrobials, a larger group which also includes antibiotic (also termed antibacterial), antifungal and antiparasitic drugs,[3] or antiviral drugs based on monoclonal antibodies.[4] Most antivirals are considered relatively harmless to the host, and therefore can be used to treat infections. They should be distinguished from virucides, which are not medication but deactivate or destroy virus particles, either inside or outside the body. Natural virucides are produced by some plants such as eucalyptus and Australian tea trees.[5]Most of the antiviral drugs now available are designed to help deal with HIV, herpes viruses, the hepatitis B and C viruses, and influenza A and B viruses.[6]Viruses use the host's cells to replicate and this makes it difficult to find targets for the drug that would interfere with the virus without also harming the host organism's cells. Moreover, the major difficulty in developing vaccines and antiviral drugs is due to viral variation.[7]The emergence of antivirals is the product of a greatly expanded knowledge of the genetic and molecular function of organisms, allowing biomedical researchers to understand the structure and function of viruses, major advances in the techniques for finding new drugs, and the pressure placed on the medical profession to deal with the human immunodeficiency virus (HIV), the cause of acquired immunodeficiency syndrome (AIDS).[8]The first experimental antivirals were developed in the 1960s, mostly to deal with herpes viruses, and were found using traditional trial-and-error drug discovery methods.[9] Researchers grew cultures of cells and infected them with the target virus. They then introduced into the cultures chemicals which they thought might inhibit viral activity and observed whether the level of virus in the cultures rose or fell. Chemicals that seemed to have an effect were selected for closer study.[10][11]This was a very time-consuming, hit-or-miss procedure, and in the absence of a good knowledge of how the target virus worked, it was not efficient in discovering effective antivirals which had few side effects. Only in the 1980s, when the full genetic sequences of viruses began to be unraveled, did researchers begin to learn how viruses worked in detail, and exactly what chemicals were needed to thwart their reproductive cycle.[12]This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources in this section. Unsourced material may be challenged and removed. (September 2022) (Learn how and when to remove this message)The general idea behind modern antiviral drug design is to identify viral proteins, or parts of proteins, that can be disabled.[11][13] These "targets" should generally be as unlike any proteins or parts of proteins in humans as possible, to reduce the likelihood of side effects and toxicity.[8] The targets should also be common across many strains of a virus, or even among different species of virus in the same family, so a single drug will have broad effectiveness. For example, a researcher might target a critical enzyme synthesized by the virus, but not by the patient, that is common across strains, and see what can be done to interfere with its operation.Once targets are identified, candidate drugs can be selected, either from drugs already known to have appropriate effects or by actually designing the candidate at the molecular level with a computer-aided design program.The target proteins can be manufactured in the lab for testing with candidate treatments by inserting the gene that synthesizes the target protein into bacteria or other kinds of cells. The cells are then cultured for mass production of the protein, which can then be exposed to various treatment candidates and evaluated with "rapid screening" technologies.Viruses consist of a genome and sometimes a few enzymes stored in a capsule made of protein (called a capsid), and sometimes covered with a lipid layer (sometimes called an 'envelope'). Viruses cannot reproduce on their own and instead propagate by subjugating a host cell to produce copies of themselves, thus producing the next generation.Researchers working on such "rational drug design" strategies for developing antivirals have tried to attack viruses at every stage of their life cycles. Some species of mushrooms have been found to contain multiple antiviral chemicals with similar synergistic effects.[14]Compounds isolated from fruiting bodies and filtrates of various mushrooms have broad-spectrum antiviral activities, but successful production and availability of such compounds as frontline antiviral is a long way away.[15]Viral life cycles vary in their precise details depending on the type of virus, but they all share a general pattern:Attachment to a host cell.Release of viral genes and possibly enzymes into the host cell.Replication of viral components using host-cell machinery.Assembly of viral components into complete viral particles.Release of viral particles to infect new host cells.One antiviral strategy is to interfere with the ability of a virus to infiltrate a target cell. The virus must go through a sequence of steps to do this, beginning with binding to a specific "receptor" molecule on the surface of the host cell and ending with the virus "uncoating" inside the cell and releasing its contents. Viruses that have a lipid envelope must also fuse their envelope with the target cell, or with a vesicle that transports them into the cell before they can uncoat.This stage of viral replication can be inhibited in two ways:Using agents which mimic the virus-associated protein (VAP) and bind to the cellular receptors. This may include VAP anti-idiotypic antibodies, natural ligands of the receptor, and anti-receptor antibodies.Using agents which mimic the cellular receptor and bind to the VAP. This includes anti-VAP antibodies, receptor anti-idiotypic antibodies, extraneous receptor and synthetic receptor mimics.This strategy of designing drugs can be very expensive, and since the process of generating anti-idiotypic antibodies is partly trial and error, it can be a relatively slow process until an adequate molecule is produced.Main article: Entry inhibitorA very early stage of viral infection is viral entry, when the virus attaches to and enters the host cell. A number of "entry-inhibiting" or "entry-blocking" drugs are being developed to fight HIV. HIV most heavily targets a specific type of lymphocyte known as "helper T cells", and identifies these target cells through T-cell surface receptors designated "CD4" and "CCR5". Attempts to interfere with the binding of HIV with the CD4 receptor have failed to stop HIV from infecting helper T cells, but research continues on trying to interfere with the binding of HIV to the CCR5 receptor in hopes that it will be more effective.HIV infects a cell through fusion with the cell membrane, which requires two different cellular molecular participants, CD4 and a chemokine receptor (differing depending on the cell type). Approaches to blocking this virus/cell fusion have shown some promise in preventing entry of the virus into a cell. At least one of these entry inhibitorsa biomimetic peptide called Enfuvirtide, or the brand name Fuzeonhas received FDA approval and has been in use for some time. Potentially, one of the benefits from the use of an effective entry-blocking or entry-inhibiting agent is that it potentially may not only prevent the spread of the virus within an infected individual but also the spread from an infected to an uninfected individual.One possible advantage of the therapeutic approach of blocking viral entry (as opposed to the currently dominant approach of viral enzyme inhibition) is that it may prove more difficult for the virus to develop resistance to this therapy than for the virus to mutate or evolve its enzymatic protocols.Inhibitors of uncoating have also been investigated.[16][17]Amantadine and rimantadine have been introduced to combat influenza. These agents act on penetration and uncoating.[18]Pleconaril works against rhinoviruses, which cause the common cold, by blocking a pocket on the surface of the virus that controls the uncoating process. This pocket is similar in most strains of rhinoviruses and enteroviruses, which can cause diarrhea, meningitis, conjunctivitis, and encephalitis.[19]Some scientists are making the case that a vaccine against rhinoviruses, the predominant cause of the common cold, is achievable.Vaccines that combine dozens of varieties of rhinovirus at once are effective in stimulating antiviral antibodies in mice and monkeys, researchers reported in Nature Communications in 2016.[20]Rhinoviruses are the most common cause of the common cold; other viruses such as respiratory syncytial virus, parainfluenza virus and adenoviruses can cause them too.[21] Rhinoviruses also exacerbate asthma attacks. Although rhinoviruses come in many varieties, they do not drift to the same degree that influenza viruses do. A mixture of 50 inactivated rhinovirus types

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