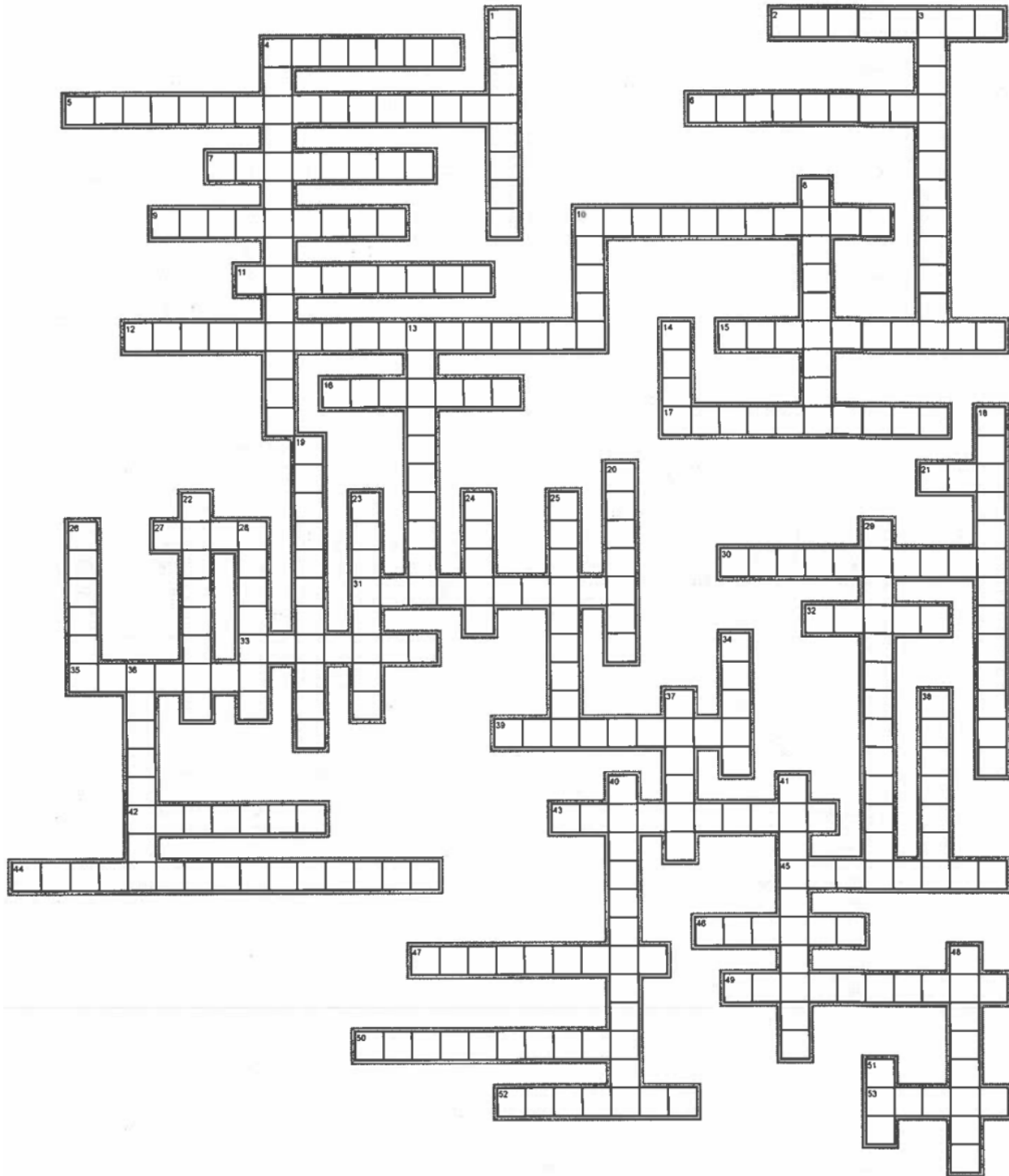


Nobel Laureate Crossword Puzzle 2000 - 2009



Word bank

ANTHRAX BARACK BARDEEN BROWNIAN CARTER CHANNELS CLIMATE CONDENSATE
CRYSTALLOGRAPHY DESORPTION DIVISION DUNES EINSTEIN EUKARYOTIC EXPRESSION
FLUORESCENCE FUNCTION FUNCTIONAL GRAMEEN HOMESTAKE HYDROGENATION
IMMUNODEFICIENCY INTERFERENCE IONIZATION JELLYFISH KATRINA KIVA
MAGNETORESISTANCE MILLENNIUM MONTENEGRO NANOMETERS NEUTRINOS NOBEL
NORWEGIAN NUCLEAR OPPORTUNITY OZONE POLYMERS POTASSIUM PROTEINS
QUANTUM RESONANCE RIBONUCLEIC RIBOSOMES RNA ROLLING SCHROCK SERIAL
SOLID STEROSELECTIVE TRANSCRIPTION TWILIGHT USB VIRAL YALE

Across

2. Dr. Nurse, Dr. Hartwell and Dr. Hunt were awarded the 2001 Physiology or Medicine Nobel Prize for their research with protein molecules that control cell _____.
4. Professor Robert Grubbs and Professor Richard _____ expanded on the work of Dr. Chauvin, and all three chemists shared the 2005 Nobel Prize in Chemistry. They developed new catalysts improved on Dr. Chauvin's, resulting in a more efficient process.
5. "The Nobel Prize in Physiology or Medicine 2008 was divided; one half awarded to Harald zur Hausen "for his discovery of human papilloma viruses causing cervical cancer", the other half jointly to Françoise Barré-Sinoussi and Luc Montagnier "for their discovery of human _____ virus" (from Nobelprize.org).
6. Professor Paul Lauterbur and Dr. Peter Mansfield won the Nobel Prize in Physiology or Medicine in 2003 for the development of Magnetic _____ Imaging (MRI).
7. The 4 papers Einstein published in 1905 that were major developments included; (i) the Photoelectric Effect; (ii) _____ motion; (iii) theory of Special Relativity; and (iv) the mass-energy relationship expressed in $E = mc^2$.
9. The formal ceremony for the Nobel Prize awards takes place in the Oslo City (Norway). The hosts include members of the _____ royal family.
10. In January of 2004, two rovers (USA) landed on Mars. The rovers Spirit and _____ landed on opposite sides of the planet. Since that time they have returned data that redefined our knowledge of the planet.
11. Dr. Masatoshi Koshiba was a founder of neutrino astronomy. He, along with Dr. Ray Davis, won the 2002 Physics Nobel Prize for experimental work that detected solar _____.
12. Dr. Albert Fert and Dr. Peter Grünberg won the 2007 Nobel Prize in Physics for their work with giant _____. This work laid the foundation for gigabyte hard disks.
15. Ion channels are between 0.4 to 1.2 _____ in diameter. Ion channels are defined by proteins that allow specific ions to cross a cell membrane, in some cases at rates up to one hundred million ions per second. (100,000,000 ions/s)
16. The Bose-Einstein condensate is a state of matter in which atoms whose temperature is reduced to almost absolute zero (0 Kelvin, - 273.15 °C, - 460 °F). In this state the atoms become a single _____ entity.
17. RNA is involved in multiple functions in living cells, such as; protein synthesis, genetic information carrier, and gene _____ regulation.
21. Ribosomes are composed of _____ and proteins that are located in the cytoplasm of living cells.
27. _____ is a well known online lending organization that makes microloans to small businesses located in some of the poorest areas on the planet. Approximately 80% of their recipients are women. (hint, sometimes groups of students will get together and make small loans to these businesses. They have a very high repayment rate). This effort resulted in a Nobel Prize in Economics. <https://www.kiva.org/>
30. Ubiquitin is a regulatory protein (8.6 kDa) located in most _____ organisms.
31. In 1995 Eric Cornell was able to synthesize the 1st Bose-Einstein _____. He shared the Nobel

- Prize in Physics with two other scientists who also conducted ultra-low temperature physics. (Dr. Wolfgang Ketterle and Dr. Carl Wieman).
32. In 2003, Severe Acute Respiratory Syndrome (SARS), appeared in Asia. It is a _____infection caused by the coronavirus.
 33. Gnarl's Barkley song 'Crazy', was rated by _____ Stone magazine as the top song from 2000-2009.
 35. In 2005, Hurricane _____ became the most expensive hurricane in U.S. history. It hit the Gulf coast of the southern U.S., and caused large scale devastation in New Orleans.
 39. Dr. Raymond Davis won a Nobel Prize in Physics for the _____ experiment which resulted in the detection of neutrinos emitted from the sun (awarded 2002).
 42. Muhammad Yunus was awarded the 2006 Nobel Prize in Economics. He founded the _____ Bank, which was based on the concepts of microcredit and microfinance.
 43. The top 10 buildings of the decade (2000-2009) were ranked by Jon Glancey. The #1 building was the _____ Dome, in London. It has a diameter of 365 meters and was nicknamed the Giant JellyFish by some.
 44. Dr. Thomas Steitz was a recipient of the 2009 Nobel Prize in Chemistry for his work on the ribosome. He worked with colleagues to unravel the structure of the 50S ribosomal subunit. The structure was determined using X-ray _____, the same technique used by Watson and Crick for their groundbreaking work with DNA.
 45. Dr. Peter Agre and Dr. Roderick MacKinnon won the Nobel Prize in Chemistry (2003) for their research and discovery of ion _____ located in cell membranes.
 46. USB, or universal _____ bus, is used to connect external devices to computers.
 47. The bright green fluorescent protein (GFP, 2008 Nobel Prize), was first measured in a _____ (Aequorea victoria), in the early 1960's. It would later become useful in medical diagnostic procedures, which resulted in a Nobel Prize.
 49. In terms of new countries formed during this decade (2000-2009); Kosovo separated from Serbia (2008); Montenegro split from Serbia (2006); East Timor became a country (2002), and Serbia left _____ (2000).
 50. Dr. Koichi Tanaka won the 2002 Nobel Prize in Chemistry (shared with 2 others) for a mass spec ionization technique known as soft laser _____ (SLD).
 52. Dr. Kurt Wüthrich won the 2002 Nobel Prize in Chemistry. He developed a _____ Magnetic Resonance (aka NMR) method to deduce the structures of biological macromolecules.
 53. Dr. Gerhard Ertl won the 2007 Nobel Prize in chemistry for his research related to chemical reactions on _____ surfaces.

Down

1. "The Royal Swedish Academy of Sciences awarded the Nobel Prize in Chemistry for 2000 jointly to Alan J. Heeger, Alan G. MacDiarmid and Hideki Shirakawa for the discovery and development of conductive _____" (from Nobel.org)
3. Dr. Andrew Fire and Dr. Craig Mello were awarded the 2006 Nobel Prize in Physiology or Medicine for the discovery of RNA _____ (RNAi).
4. Dr. Karl Sharpless won two Nobel Prizes in Chemistry. In 2001 he was awarded 1/2 of the Prize for his research on _____ reactions.
8. Dr. Ada Yonath was one of three recipients of the 2009 Nobel Prize in Chemistry. Her primary area of research was understanding the structure of _____ at a molecular level.
10. One description the Nobel committee used to outline Dr. Ertl's Nobel award winning research is "Surface chemistry can even explain the destruction of the _____ layer, as vital steps in the reaction actually take place on the surfaces of small crystals of ice in the stratosphere,"
13. Dr. John Fenn won the 2002 Nobel Prize in Chemistry for his invention; Electrospray _____ (ESI). It is a widely used ionization technique that is coupled with mass spectrometry's.
14. Dr. John Fenn, the inventor, would have a legal battle with _____ University over the ownership of the intellectual property (IP) related to ElectroSpray Ionization (ESI).
18. Reverse _____ is the process of copying RNA information to DNA. The catalyst of the reaction is called reverse _____ enzymes.
19. The 2006 Nobel Prize in Chemistry was awarded to Dr. Roger Kornberg. He was the sole recipient of the chemistry prize that year. His work centered on a process where genetic information from DNA is

- copied to RNA or _____ nucleic acid,
20. Dr. Sharpless, along with Dr. Marie Curie, Dr. John _____, Dr. Linus Pauling and Dr. Frederick Sanger, were awarded two (different topics) Nobel Prizes.
 22. The term "annus mirabilis papers" describes four papers Albert _____ published in 1905. It is also referred to as the "miracle year". 2005 was the 100 year anniversary of this extraordinary achievement.
 23. Dr. Venkatraman Ramakrishnan shared the 2009 Nobel Prize in Chemistry with two other scientists. His research focused on understanding the structure and _____ of ribosomes.
 24. _____ Prize
 25. _____ ion channels are found in most organisms. They are pores that span cell membranes. Nobel laureate Roderick MacKinnon studied this specific cell membrane entity.
 26. President _____ Obama was awarded the 2009 Nobel Peace Prize for "his extraordinary efforts to strengthen international diplomacy and cooperation between peoples." (from NobelPrize.org)
 28. In a case of bioterrorism, letters that were laced with _____ were delivered to a U.S. media company and the offices of U.S. Senators. This took place in 2002.
 29. The 2001 Nobel Prize in chemistry was awarded to Dr. Knowles and Dr. Noyori for their research in the field of asymmetric synthesis with a focus on _____ reactions.
 34. In 2004, the Great Sand _____, located near Alamosa (a town with 10,000 residents), was designated a National Park. Located in Colorado, it has sand dunes over 700 feet high. Human habitation in this area dates back 11,000 years.
 36. From 2000 to 2009, some of the most popular books included; Harry Potter and the Deathly Hallows, The Kite Runner, Life of Pi, The Da Vinci Code, and The _____ Saga.
 37. President Jimmy _____ was born and raised in Plains, Georgia. He attended the U.S. Naval Academy (Annapolis). In the Navy, he was assigned to submarines, including nuclear subs. He won the 2002 Nobel Peace Prize.
 38. The Intergovernmental Panel on _____ Change (IPCC) shared the 2007 Nobel Peace Prize with U.S. Vice President Al Gore. The IPCC is an intergovernmental body associated with the United Nations (UN).
 40. The Nobel Prize in Chemistry 2008 was awarded jointly to Osamu Shimomura, Martin Chalfie and Roger Y. Tsien "for the discovery and development of the Green _____ Protein, GFP" (from Nobelprize.org)
 41. Roderick MacKinnon and Peter Agre won the 2003 Nobel Prize in Chemistry for their work outlining the structural and _____ aspects of ion channels.
 48. ESI allowed _____ to be ionized and introduced into a mass spectrometer (MS). This allowed for more accurate masses to be determined, when compared to other techniques.
 51. The first _____ flash drive was released in 2000.