

DNA Suggests Columbus Remains in Spain  
By Rossella Lorenzi, Discovery News

Oct. 6, 2004 — Preliminary analysis suggests that Christopher Columbus might be buried in the Gothic cathedral of Santa Maria in Seville, the city from where he set sail in 1492, rather than under a cross-shaped lighthouse in Santo Domingo, where he made his historic landfall in the New World.

In the attempt to solve the long-standing dispute over Christopher Columbus' final resting place, Granada University researchers, led by forensic geneticist Jose Antonio Lorente, removed two boxes from an ornate tomb in the Spanish cathedral last year.

One is thought to contain Columbus' bones; the other is known to hold the remains of Hernando, Columbus' illegitimate son.

Another box, believed to contain the bones of Columbus' brother Diego, was also exhumed in the Cartuja monastery, close to Seville, in 2002.

Researchers have now announced that DNA tests on the three bone samples, carried out in several laboratories coordinated by Lorente, have produced some positive results despite the degraded and contaminated condition of most of the material.

"There is a consensus between the lab in Granada and our lab in Rome over one part of the sequence. The result shows that the remains attributed to Columbus and those of his brother Diego are similar," Olga Rickards, from the University of Rome's molecular anthropology lab, told Discovery News.

"Basically, we can't rule out that the remains are those of Columbus. To be sure, we need to carry out further analysis. We need to have more results from more regions of the mitochondrial DNA that could support the same maternal lineage," Rickards said.

So far, Columbus' supposed remains have yielded none of the nuclear DNA that could prove a paternal lineage with Hernando, whose genetic material is in good shape. The test would provide the best possible evidence for Columbus being buried in Seville.

Historians are sure about Hernando's identity because his remains were never moved after his 1539 burial.

With no nuclear DNA to work with, researchers turned to mitochondrial DNA, which is passed down from the mother and is more plentiful in molecules than nuclear DNA.

Rickards' team carried out a blind test, in which the three samples were kept anonymous. "Sample 1" and "sample 3" showed great similarity in two parts of the sequence inherited from the mother, with one part matching. The samples turned out to be the one attributed to Columbus and the one to his brother Diego.

"Of course, DNA cannot give a name to the bones. In the best-case scenario, further analysis will allow us to say that the bone sample from the Seville cathedral has a type of mitochondrial DNA identical to the fragment from La Cartuja. It will be the historian's job to say that those bones are from Columbus and Diego," Rickards said.

#### Travelling After Death

The man who discovered America travelled almost as much after his death as in his life. In his will, Columbus requested that his remains be taken to what is today the Dominican Republic. Yet he was initially buried in the Castilian city of Valladolid, where he died on May 20, 1506.

He remained there only three years before his bones were moved to Seville's Carthusian monastery. In 1537 they were finally sent for burial in Santo Domingo, along with the body of his legitimate son, Diego.

But in 1795, the French took control of the island and the Spaniards moved Columbus' bones to Havana. In 1898, when the Spaniards were thrown out of Cuba, the remains were taken back to Seville and buried in the cathedral.

The debate began when a box bearing the inscription "illustrious and enlightened male Don Cristobal Colon" and containing bone fragments was found in Santo Domingo's cathedral in 1877.

According to the Dominicans, in 1795 the Spaniards took the wrong body, that of Columbus' son Diego, buried nearby.

Genetic material from the body buried in Santo Domingo would be crucial for the research, but so far authorities in the Dominican Republic have not allowed the exhumation of the remains buried under the lighthouse.

"The hypothesis of some Columbus remains buried in Seville should not be ruled out. Genoa and Pavia also claim to have some of his remains. It seems that parts of his body are scattered everywhere. Personally, I still believe that Columbus' remains are in Santo Domingo," writer and historian Ruggero Marino, author of several controversial books on Colombo, told Discovery News.

<http://www.christopher-columbus.eu/dna-tests.htm>

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Since Christopher Columbus died on May 20, 1506, there has been a suspicion that Columbus was not, as widely thought, the son of Domenico Colombo, a wool weaver and innkeeper from the northern Italian port of Genoa, but perhaps someone else. Columbus roots have now been examined by modern forensic techniques.

The Spanish government has paid for DNA testing. A team of 20 scientists from Spain, Italy, Germany and the United States, led by Josi Antonio Lorente Acosta, a Spanish scientist, has been analysing a pea-sized sample of Columbus' DNA drawn from his tomb in Seville in 2003. Dr .Lorente is a former instructor at the FBI academy whose work has been instrumental in identifying victims of Spanish Civil War atrocities.

Dr. Antonio Lorente of the University of Granada in Spain is attempting to compare the DNA from three sets of remains (Christopher, son Fernando, brother Diego) to see if he can prove that this is Columbus. Lorente's DNA samples are expected to prove where Columbus' remains really reside today.

Lorente's original idea was to examine purported Columbus remains in Seville, Spain, and at the Faro a Colon monument in the Dominican Republic to find out where Columbus was actually buried. Lorente sought to compare DNA in both places with the DNA from Columbus' son and from his brother.

However the remains from Seville were perhaps not large enough to provide conclusive DNA samples, and the Dominican government refused to let the team examine the bones there.

Annunciada Colon, Columbus' direct descendent, handed over the key to a burial chest, disinterred from the Cathedral in Seville, Spain. This chest is believed to contain [Columbus' bones](#), but there is some doubt that these may not be Columbus' bones at all, and that his bones may be in the Dominican Republic. Columbus' place of burial is a politically sensitive subject, because both Spain and the Dominican Republic claim to have his remains. Moreover [his bones have been moved so many times](#) that there is genuine doubt as to where they have ended up. Lorente does not dismiss the possibility that Columbus' bones could actually be divided between Spain and the Dominican Republic, meaning the explorer rests in both countries

The bones thought to be those of Christopher Columbus have deteriorated so much, they only provide fragmentary genetic evidence. Those believed to belong to Diego are not in much better shape, but Hernando's bones have been relatively well preserved, Lorente said in a telephone interview.

Professor Olga Rickards, a molecular biologist from Tor Vergata University in Rome, said the next step was to compare those samples with hundreds of people now living in Spain, France and Italy with the surname Columbus, Colombo, Colomb, Colom, or Coulom. Modern-day Columbuses have been sent a cotton bud, and instructions to swab out their mouths. Miss Rickards said the results would take a month or two. Only men are being tested, because researchers are focusing on the Y chromosome, which determines male sex.

"We'll get something, but it will be complicated," Lorente said in a telephone interview from his University of Granada office. "The trick is to differentiate between the Columbuses from different places -- and there's no guarantee."

"So far, the evidence indicates that the man to whom those bones belonged was related to Hernando and Diego on the maternal side," Lorente said. "There are rarely absolute certainties in science, but we expect to reach conclusions with a high degree of probability."

What is known is that Columbus had red hair, freckles and was around six feet tall, a giant in his day. He had two sons.

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A forensic team led by Spanish geneticist Jose Antonio Lorente has compared DNA from bone fragments that Spain says are from the explorer, and are buried in a cathedral in Seville, with DNA from remains that are known to be from Columbus' brother Diego, who is also buried in the southern Spanish city.

"There is absolute matchup between the mitochondrial DNA we have studied from Columbus' brother and Christopher Columbus," said Marcial Castro, a Seville-area historian and high school teacher who is the mastermind behind the project, which began in 2002. Mitochondria are cell components rich in DNA.

Castro and his research colleagues have been trying in vain for years to convince the Dominican Republic to open up an ornate lighthouse monument in the capital Santo Domingo that it says holds the remains of the explorer. Juan Bautista Mieses, the director of the Columbus Lighthouse, a cross-shaped building several blocks long, dismissed the researchers' findings and insisted Friday that Columbus was indeed buried in the Dominican Republic. "The remains have never left Dominican territory," Bautista said.

Castro stressed in an interview that, although his team is convinced the bones in Seville are from Columbus, this does not necessarily mean the ones in Santo Domingo are not. Columbus' body was moved several times after his death and the tomb in Santo Domingo might conceivably also hold part of the right body. "We don't know what is in there," Castro said.

Castro says the team is now focusing their DNA tools on another Columbus mystery: his country of origin. Traditional theory says he was from Genoa, Italy, but another line of argument says Columbus was actually from the Catalonia region of northeast Spain.

One piece of evidence supporting this latter idea is that when Columbus wrote back from the New World in Spanish, not Italian, he used words and phrases that reflected influence from the Catalan language, Castro said.

The new team has now collected DNA samples from more than 350 men in Catalonia whose last name is Colom, the Catalan way of saying Columbus, and from 80 in Italy whose last name is Colombo. The idea is to compare the genetic material with DNA from another authenticated Columbus relative, his son Hernando, who is buried in Seville. In this case, another kind of DNA is focused on genetic material from the y-chromosome, which men receive only from their fathers.

DNA from y-chromosomes is much more scarce than the mitochondrial kind and deteriorates more rapidly. The team is using Hernando's because that of his alleged father is in bad shape. Lorente and company want to see if the DNA pattern in Columbus' y-chromosome still shows up in men in either Catalonia or Italy, which would suggest he is from one place or the other, Castro said. It is not known when the results of this second study will be available because the data from Italy is still scant. "The people whose last name is Colombo are cooperating less than the Coloms in Spain," he said.

Christopher Columbus died in Valladolid, Spain, on May 20, 1506, at the age of 54. He had suffered through a long terminal illness that first showed symptoms on his third voyage eight years before. His son Fernando records the cause of death as "gout." But in those days, gout was anything that caused joint pain. Recent research by Gerald Weissmann indicates that the most likely cause of death was [Reiter's Syndrome](#), a rare tropical disease.

Following his death, Christopher Columbus perhaps travelled more in death than even in life. His bones moved location in Spain, then went to the Caribbean, moved a number of times there, before being (perhaps) finally repatriated to Spain to rest in Seville Cathedral

After Christopher Columbus' death body underwent excarnation - that is the flesh was removed so that only his bones remained. In his will, Columbus requested his remains to be taken to the Caribbean island of La Espanola. However he was initially buried in the Castilian city of Valladolid, where he died on May 20, 1506. Christopher Columbus, died without the fanfare. He was buried, with

only a handful in attendance, in a small monastery at Valladolid, Spain, wearing the habit of the third order of Saint Francis and, according to his wishes, in the chains he wore upon his arrest after his third voyage to the New World. Only three lines of text marked his obituary in the official record

1. Valladolid. He was first interred in Valladolid. He remained at Valladolid only three years as his bones were disinterred and moved to Seville's Carthusian monastery.

2. The monastery of La Cartuja in Seville. When Columbus' eldest son and heir Diego died in 1526, he was buried beside his father. In 1537, Maria de Rojas y Toledo, widow of one of Columbus' sons, Diego, sent the bones of her husband and his father to the cathedral in Santo Domingo for burial.

His son Diego is the authority for the statement that his remains were buried in the Carthusian Convent of Las Cuevas, Seville, within three years after his death. According to the records of the convent, the remains were given up for transportation to Haiti in 1536, though other documents placed this event in 1537. It is conjectured, however, that the removal did not take place till 1541, when the Cathedral of Santo Domingo was completed, though there are no records of this entombment. The bones certainly were moved to Hispaniola.

And there matters stood for over two centuries.

3. Santiago, Santo Domingo. So the remains of Columbus were moved across the Atlantic, and were buried under the right side of the altar in the cathedral in Santo Domingo. In 1795, the French captured the island of Hispaniola from Spain. By now the Spanish viewed Columbus' remains as a national treasure, and wished to prevent their capture by the French. So, relying on old records, they dug up his remains and removed them to Havana, Cuba.

However the tale is confused by the fact that in 1877, workers restoring the cathedral in Santo Domingo found, under the left side of the altar, a box containing human remains. The box bore the name Columbus. They unearthed an urn containing bones and displaying the inscription: "The illustrious and distinguished male, Don Christopher Columbus." It was thought by some that the "left" and "right" sides of the altar depended upon the direction one is facing. And therefore, some argue, the body that had been moved to Haiti in 1795 was really that of Diego, while the Admiral's remains had been in Santo Domingo all along.

4. Haiti. When, in 1795, Haiti passed under French control, Spanish authorities removed the supposed remains of Columbus to Havana. On the occupation of Cuba by the United States they were once more removed to Seville (1898).

5. Havana. A century later, when Cuba became independent following the Spanish-American War in 1898, his remains were moved back to the Cathedral of Seville

6. Seville Cathedral. They were placed on an elaborate catafalque. Columbus' tomb in the cathedral of Seville is guarded by four statues of kings representing the Kingdoms of Castile, Leon, Aragon, and Navarre. However, a lead box bearing an inscription identifying "Don Christopher Columbus" and containing fragments of bone and a bullet was discovered at Santo Domingo in 1877. [The DNA tests](#) currently being carried out are to try to determine where Columbus' bones actually are today.

[All you need to know about Reiter's Syndrome or Reactive Arthritis](#) "A systemic illness characterized by a combination of arthritis (inflammation of the joints), conjunctivitis (inflammation of the conjunctiva, a membrane in the eye), and urethritis (inflammation of the urethra). Reactive arthritis is a type of seronegative spondyloarthropathy, meaning that the rheumatic factor is serologically negative and has a rheumatic effect on the spine. Other diseases in this category include ankylosing spondylitis, psoriatic arthritis, and enteropathic arthritis (Sigal, 2001)."

After a dangerous final voyage back from Haiti, Columbus landed back in Spain on 7 November, 1504. Queen Isabella of Castile was gravely ill, and soon she died, on November 26, 1504.

Weakened by rheumatism, exposure, and years of [bad food](#) Columbus had become very ill from his last trip, and he spent many months in Seville recuperating at the Monastery of Las Cuevas. On his first voyage he noted the "sore eyes" that later disabled him. He may have contracted malaria and typhus, and probably suffered from [Reiter's syndrome](#), which combines eye and urinary tract disorders with arthritis.

Over the next year and a half, until his death, Columbus tried to regain his lost titles of Governor and Viceroy. He petitioned the crown and when he was well enough, followed the court of King Ferdinand to several cities in Spain hoping to see the king. In May, 1505, King Ferdinand finally granted Columbus an audience to present his claims to the riches of the Indies. His titles (Governor and Viceroy) were not returned, but the king did allow arbitration on his financial claims. The Admiral's share was confirmed at ten percent of the royal one-fifth (the quinto real). This amounted to two percent of the riches of the Indies, a considerable amount, and it afforded the Columbus family a noble life style. Considering his poor health, it is apparent that concern over profits and rights was not for himself but for his sons Diego and Ferdinand. The Columbus family's struggle for justice continued well beyond the Admiral's death.

In late 1505, Columbus became too ill to travel any more and remained until his death in a modest house at Valladolid. He began to write his [Book of Prophecies](#), a compilation of apocalyptic religious revelations. In the spring of 1506, at age 55, Columbus complained, "This illness now works me without pity." Cardiac complications had probably set in; his body was swollen with dropsy. The end was near. He ordered Diego to "provide for Beatriz Enriquez, mother of my son Don Ferdinand, so that she might live decently, as a person to whom I am greatly indebted."

On May 20, 1506, both sons, brother Bartolomeo and his friend Diego Méndez were at his side when the Admiral murmured "Into thy hands, O Lord, I commit my spirit" and passed away. [His body](#) was buried initially in Valladolid but then moved to several venues in Spain and the Indies before finally reaching the Cathedral of Seville.

Queen Isabel and King Fernando agreed to Columbus's conditions that if he succeeded with his first voyage, then he would be knighted, appointed Admiral of the Ocean Sea, made the viceroy of any new lands, and get ten percent of any new wealth. So observers think that the Spanish monarchs did not expect Columbus to return, and that is why they acceded to his conditions.

Following his return from his successful voyage of discovery, the Spanish sovereigns granted Columbus the right to bear arms. According to the letters patent dated May 20, 1493, Columbus was to bear in the first and the second quarters the royal charges of Castile and Leon -- the castle and the lion. In the third quarter would be islands in a wavy sea (he later added a continent to the islands), and in the fourth, the customary arms of his family ( he later changed this to five anchors in fess from the blazon of the Admiral of Castile)

By 1502, after his 3rd voyage, Columbus had been charged with mal administration in the Indies. The Book of Privileges is a collection of agreements between Columbus and the crowns of Spain prepared in Seville in 1502 before his 4th final voyage. The documents include the 1497 confirmation of the rights to titles and profits granted to the Admiral by the 1492 contract of Santa Fe and augmented in 1493 and 1494, as well as routine instructions and authorizations related to his third voyage. We know that four copies of his Book of Privileges existed in 1502, three written on vellum and one on paper. It includes an unofficial transcription of a Papal Bull of September 26, 1493 in which Pope Alexander VI extended Spain's rights to the New World.

<http://www.christopher-columbus.eu/birth-1492.htm>

The DNA of small bone fragments from Columbus which are stored at a vault at Granada University in southern Spain will be compared to those from the remains of suspected family members of the explorer. Columbus in the court of Spain's Catholic Monarchs. Artist: Juan Cordero, 1850 (Wikipedia). It will also be compared with the DNA of people alive with the same family name as Columbus from the different parts of the world where he is believed to have come from. While Lorente hopes the results will be "totally conclusive", he acknowledged researchers were not certain they could obtain genetic samples from all the bones "in sufficient quantity and quality to reach a conclusion". Was Christopher Columbus REALLY from Italy? Scientists study DNA from the explorer's bones to finally prove where he came from amid theories he was actually Spanish, Portuguese, Croatian or Polish. Historians have long debated the heritage of Christopher Columbus. While the popular belief is Italy, some say it could be Spain or Portugal. Scientists are now using bone fragments from the explorer, along with those from his brother and son with the hopes of reading DNA to determine his origin. The team plans to announce their findings this October. Now, a team of international scientists are set to analyze DNA from the remains with the hopes of uncovering the truth about the 15th-century navigator and plan to announce their findings in October. Spanish scientists from the University of Granada will carry out a DNA test on the remains of Christopher Columbus to hopefully solve the mystery of his origin, according to a press release published on Wednesday. The researchers will also examine the remains of Columbus' brother, Diego, with results expected to be revealed in October. "There is no doubt on our part [about his Italian origin], but we can provide objective data that can [!] close a series of existing theories," lead scientist of the DNA study at the University of Granada Jos Antonio Lorente said, cited by Associated Press. The remains of Christopher Columbus are said to lie in Seville Cathedral, in Spain. However, bones buried in Santo Domingo Cathedral in the Dominican Republic are also said to belong to the famous explorer. In 2005, Spanish researchers are hoping to extract enough DNA from both sets of bones to allow an identification to be made. Columbus died in 1506 in Valladolid, Spain, and was buried in a monastery there. His remains were later moved to Seville. However, he had always expressed a wish to be buried in the Americas. Extraction of DNA from the bones in Santo Domingo and Seville and comparison with Hernando Colon's DNA could identify which set of remains is the genuine one. Spanish researchers who have studied DNA samples from 500-year-old bone slivers say at least some of Columbus' remains do indeed lie within the tomb. Cristina Quicler / AP file. May 19, 2006, 4:23 PM UTC / Source: The Associated Press. Spanish researchers said Friday that they have resolved a century-old mystery surrounding Christopher Columbus's burial place, which both Spain and the Dominican Republic claim to be watching over. A forensic team led by Spanish geneticist Jose Antonio Lorente compared DNA from bone fragments that Spain says are from the explorer "and are buried in a cathedral in Seville" with DNA extracted from remains known to be from Columbus' brother Diego, who is also buried in the southern Spanish city.