The Latest: Nobel winner revolutionized understanding of DNA

October 7 2015

Sweden's Tomas Lindahl, one of the joint winners of the 2015 Nobel Prize for Chemistry, ponders a question during a press conference, at the Francis Crick Institute in Potters Bar, England, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair. (AP Photo/Alastair Grant)

Latest developments in the announcements of the Nobel Prizes (all times

local):

Read Update: Scientists win Nobel chemistry award for work on DNA repair

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7:05 p.m.

Tomas Lindahl, a professor at the microbiology division of Linkoping University in Sweden, got swamped with emails Wednesday congratulating him on winning the Nobel Prize in chemistry.

Except he didn't.

Another Tomas Lindahl did. Also Swedish, also a chemistry expert, but based in Britain for decades.

"I think it's sort of fun actually. To be mixed up with a Nobel Prize winner when I'm doing research in chemistry myself," Tomas Lindahl in Linkoping told Swedish newspaper Aftonbladet.

The paper said the local government in Linkoping sent out a press release congratulating the wrong Lindahl then quickly withdrew it.

Lindahl told Aftonbladet he and his namesake have been mixed up for 25 years and offered his congratulations to the real Nobel winner.

"But it would be really nice to go to the party," he added, referring to the Dec. 10 Nobel banquet.

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6:45 p.m.

A Turkish flag was hung on the building where Nobel Chemistry Prize winner Aziz Sancar grew up and relatives and fellow citizens said they were proud of the scientist who was raised "in difficult circumstances" in the town of Savur, in Turkey's Mardin province, which borders Syria.

Nephew Abdulgani Sancar told the private Dogan news agency that Aziz "grew up in difficult circumstances. My grandfather raised and educated (his children) while working as a farmer."

Another relative, Hikmet Kaya, said the Nobel prize winner studied under candlelight because electricity supplies in town were poor.

Sancar himself told Haber Turk television he comes from a family of farmers with eight children who attached great importance to education. His mother and father did not receive an education but all eight children were university graduates.

"We are so proud of him," said Savur mayor Mehmet Aydin Alokmen.

(This item corrects spelling of nephew's first name to Abdulgani.)

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6:10 p.m.

Laurence H. Pearl, head of the School of Life Sciences at the University of Sussex in Brighton, England, said Tomas Lindahl's work revolutionized the scientific understanding of DNA some four decades ago.

Pearl said for humans to have evolved into such complicated organisms, our bodies had to deal with "the inherent instability of DNA." He said Lindahl figured out there had to be a process in which cells recognize

when DNA needs to be repaired and do it thousands of times each day.

Pearl says "for me it's one of the most beautiful scientific thoughts ever formulated ... there was this great intellectual breakthrough."

Lindahl won the Nobel Prize for chemistry on Wednesday with American Paul Modrich and U.S.-Turkish scientist Aziz Sancar.

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5:35 p.m.

New Nobel laureate Paul Modrich found out about his chemistry prize while vacationing in New Hampshire. His cellphone buzzed with an email of congratulations from a colleague.

"Stockholm didn't get my number, I guess, until later in the morning," Modrich told The Associated Press in a telephone interview Wednesday. Nobel officials did call him "eventually, so I think it's real," Modrich said with a chuckle.

Interviewed five hours after the prize was announced, he said, "I'm still getting used to the idea. I never quite put our work in this class, actually .... It's nice to know other people put it in that class."

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5 p.m.

Hours later, DNA pioneer Tomas Lindahl says he's only just starting to realize that he really did win the Nobel Prize for chemistry.

The 77-year-old Swede, who has worked for decades in Britain, says he

was eating breakfast Wednesday when a "nice lady" from the Swedish academy called. He says it was only when she began speaking in Swedish that it "convinced me that it wasn't some kind of hoax."

"Then, of course, it starts sinking in that this is a great honor and a fantastic way of winding up my career," he told reporters Wednesday at his laboratory near London.

Lindahl won the prize together with American Paul Modrich and U.S.-Turkish scientist Aziz Sancar. Starting in the 1970s and working separately, the three scientists discovered how cells repair damaged DNA.

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4:10 p.m.

Nobel Chemistry Prize winner Aziz Sancar is a native of Turkey and he hopes to inspire scientists there with his win.

He says the win Wednesday "is very important for my country ... young Turkish scientists need a role model showing that they can accomplish important contributions to science."

Sancar also thinks the win will energize his colleagues in the U.S., including those who work with him at the University of North Carolina in Chapel Hill.

He says "my colleagues here are celebrating, and they are all very excited ... we're all excited."

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In this June 16, 2014 photo, Aziz Sancar, far right, joins a crowd of other soccer fans reacting to the winning USA World Cup soccer goal when watching the game at Spanky's in Chapel Hill, N.C. U.S.-Turkish national Sancar, along with Swedish scientist Tomas Lindahl and American Paul Modrich won the Nobel Prize in chemistry, Wednesday, Oct. 7, 2015, for showing how cells repair damaged DNA, work that's inspired the development of new cancer treatments. (Jim Kenney/The News & Observer via AP)

3:50 p.m.

After the Nobel Prize in medicine was awarded to other scientists this week, Aziz Sancar figured he was no longer in contention for a Nobel this year.

He was wrong.

The professor of biochemistry and biophysics at the University of North Carolina in Chapel Hill said the 5 a.m. phone call he got Wednesday to tell him that he and two others had won the Nobel Prize in chemistry came as "quite a surprise."

"It was a surprise in the sense that my work is at the interface of medicine and chemistry," he told The Associated Press.

The chemistry winners this year studied DNA repair.

Sancar says DNA repair is "important for cancer prevention and cancer treatment because sunlight, cigarette smoke, industrial pollution—all these agents cause cancer by damaging DNA. It's a defense mechanism for the damage caused by these agents."

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3 p.m.

An expert in DNA repair says the amount of damage caused to our DNA each day is astounding—an estimated 50,000 lesions per cell, per day.

Niels de Wind, a geneticist at Leiden University Medical Center in the Netherlands, says "all of these lesions have to be repaired ... if they are not repaired, they will cause cancer and aging."

Tomas Lindahl, Paul Modrich and Aziz Sancar won the 2015 Nobel Prize in chemistry on Wednesday for their studies on DNA repair.

De Wind says Sancar examined how damage caused by smoke and ultraviolet light are repaired by cells; Modrich revealed how cells correct the errors caused when they double their DNA prior to cell division; and Lindahl showed how breathing oxygen degrades DNA and how this

damage can be repaired.

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2:45 p.m.

An expert in the field of DNA repair says the work of the three Nobel laureates provided answers to separate parts of the puzzle of how our genetic material is damaged and repaired.

Niels de Wind, a geneticist at Leiden University Medical Center in the Netherlands, says the prize "is mostly a recognition of how our genome is basically safeguarded by DNA damage."

He says it also highlights "the fact that loss of DNA repair results in many different diseases, including cancer and aging."

De Wind says "as long as we breathe, we use oxygen and that rips our DNA. It's like the rusting of iron. That knowledge basically stems from the work of Tomas Lindahl."

Lindahl, Paul Modrich and Aziz Sancar won the 2015 Nobel Prize in chemistry on Wednesday for their studies on DNA repair.

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2:30 p.m.

Paul Modrich's wife, Vickers Burdett, told The Associated Press that they were on vacation in New Hampshire when they heard that Modrich and two other scientists had won a Nobel Prize in chemistry for their studies of DNA repair.

"Wow! I can't express it any better than that. Awesome!" she said in reaction to Wednesday's announcement, which she called "a total shock."

She described her husband as "phenomenal." She says "he's very dedicated, very focused and he has wonderful insights into these experiments."

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1:50 p.m.

One of the winners of this year's Nobel Prize in chemistry says his work on how cells repair damaged DNA can be used to prevent serious diseases but says he doesn't believe in eternal life.

Tomas Lindahl says "no, I don't believe in eternal life, but a lot of DNA damage can result in cancer and serious diseases so we want to counteract that damage as much as possible and then we first have to understand the mechanism of how the damage is established."

Royal Swedish Academy of Sciences member Peter Brzezinski adds he doesn't think "the goal is to prevent aging" but that the new information can lead to a "better life when we are old, simply just by understanding the diseases that are linked to aging."

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1:15 p.m.

Sweden's Tomas Lindahl, one of the joint winners of the 2015 Nobel Prize for Chemistry, ponders a question during a press conference, at the Francis Crick Institute in Potters Bar, England, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair. (AP Photo/Alastair Grant)

Members of the Royal Swedish Academy of Sciences say the work of this year's three chemistry laureates has led to research on how to beat cancer by stopping the cancer cells from repairing their DNA.

The permanent secretary of the academy, Goran Hansson, says this is a hot field in cancer research at the moment.

Academy member Peter Brzezinski adds that at least one new cancer drug is being developed using such techniques.

Brzezinski says that while cancer cells have some errors, they are kept alive because some of their mechanisms to repair DNA are still working. So instead of focusing on repairing the damage to the cell that caused the cancer, researchers are now looking at ways to destroy the DNA repair mechanisms within the cancer cells to kill them.

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1:05 p.m.

Turkish-born scientist Aziz Sancar has become the second Turk to have won a Nobel Prize, after novelist Orhan Pamuk.

Sancar, 69, won the 2015 chemistry award, sharing it with Sweden's Tomas Lindahl and American Paul Modrich for "mechanistic studies of DNA repair." Pamuk won the prize for literature in 2006.

Sancar, who was born in Turkey's southern Mardin province, is a professor at the University of North Carolina School of Medicine.

Sweden's Tomas Lindahl, one of the joint winners of the 2015 Nobel Prize for Chemistry, smiles before a press conference, at the Francis Crick Institute in Potters Bar, England, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair. (AP Photo/Alastair Grant)

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12:40 p.m.

Nobel chemistry laureate Tomas Lindahl says he hopes winning the award will help encourage more research to be done in his native Sweden.

Lindahl, who is a member of the Royal Swedish Academy of Sciences, said he was proud and thankful to have been trained at Sweden's Karolinska Institute, but points out his research has been an international venture, including collaborations with people from around the world.

The Permanent Secretary of the Royal Swedish Academy of Sciences, Goran Hansson, added Lindahl was the first member of the academy to win a chemistry prize since 1948 and assured he had not participated in any of the meetings or preparatory work for this year's award.

Lindahl shared the award with American Paul Modrich and U.S.-Turkish scientist Aziz Sancar.

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A view of the screen showing the winners of the 2015 Nobel Prize for Chemistry, during a press conference, in Stockholm, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist

Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair." (AP Photo)

12:35 p.m.

Tomas Lindahl, one of three scientists who won the 2015 Nobel Prize in chemistry for showing how cells repair damaged DNA, says "it was a surprise."

The Swede, who shared the award with American Paul Modrich and U.S.-Turkish scientist Aziz Sancar, says he got into DNA repair from studying properties of DNA, and was surprised to find that DNA "is much more labile than we usually recognize" and gets unavoidably damaged in cells.

Lindahl was speaking by phone on Wednesday at a Nobel news conference after the award was announced. The scientists' work has been used to develop new cancer treatments.

Lindahl said he hopes that in the long run the work will lead to better treatment and better drugs.

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11:50 a.m.

Tomas Lindahl, Paul Modrich and Aziz Sancar have won the 2015 Nobel Prize in chemistry.

Sweden's Tomas Lindahl, left, one of the joint winners of the 2015 Nobel Prize for Chemistry, smiles smiles as he arrives for a press conference, at the Francis Crick Institute in Potters Bar, England, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair. (AP Photo/Alastair Grant)

The Royal Swedish Academy of Sciences cited the researchers for work on "mechanistic studies of DNA repair."

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10:10 a.m.

The Royal Swedish Academy of Sciences is set to announce the winner or winners of this year's Nobel Prize in chemistry at 0945 GMT (5:45

a.m. EDT).

Sweden's Tomas Lindahl, one of the joint winners of the 2015 Nobel Prize for Chemistry, smiles before a press conference, at the Francis Crick Institute in Potters Bar, England, Wednesday, Oct. 7, 2015. Sweden's Tomas Lindahl, American Paul Modrich and U.S.-Turkish scientist Aziz Sancar won the Nobel Prize in chemistry on Wednesday for "mechanistic studies of DNA repair. (AP Photo/Alastair Grant)

It's the third award in the Nobel lineup; prize judges have already announced the winners of the medicine and physics awards.

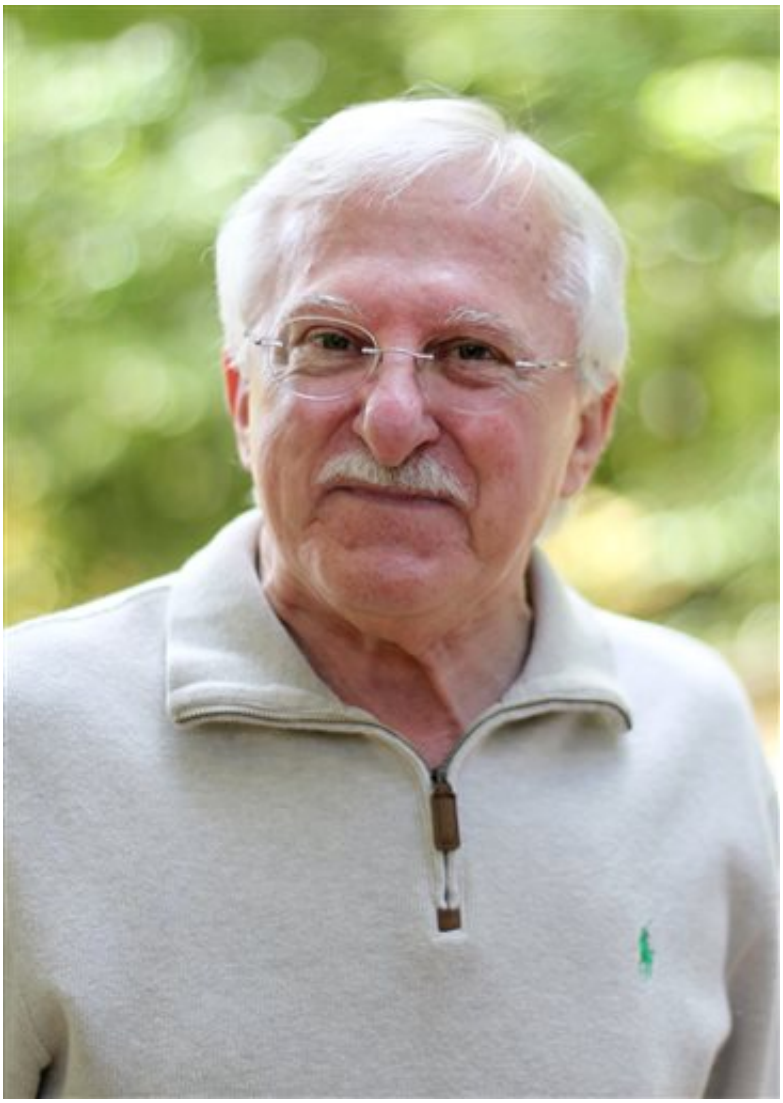
Last year's chemistry prize went to Stefan Hell of Germany and Americans Eric Betzig and William Moerner for finding ways to make

microscopes more powerful than previously thought possible.

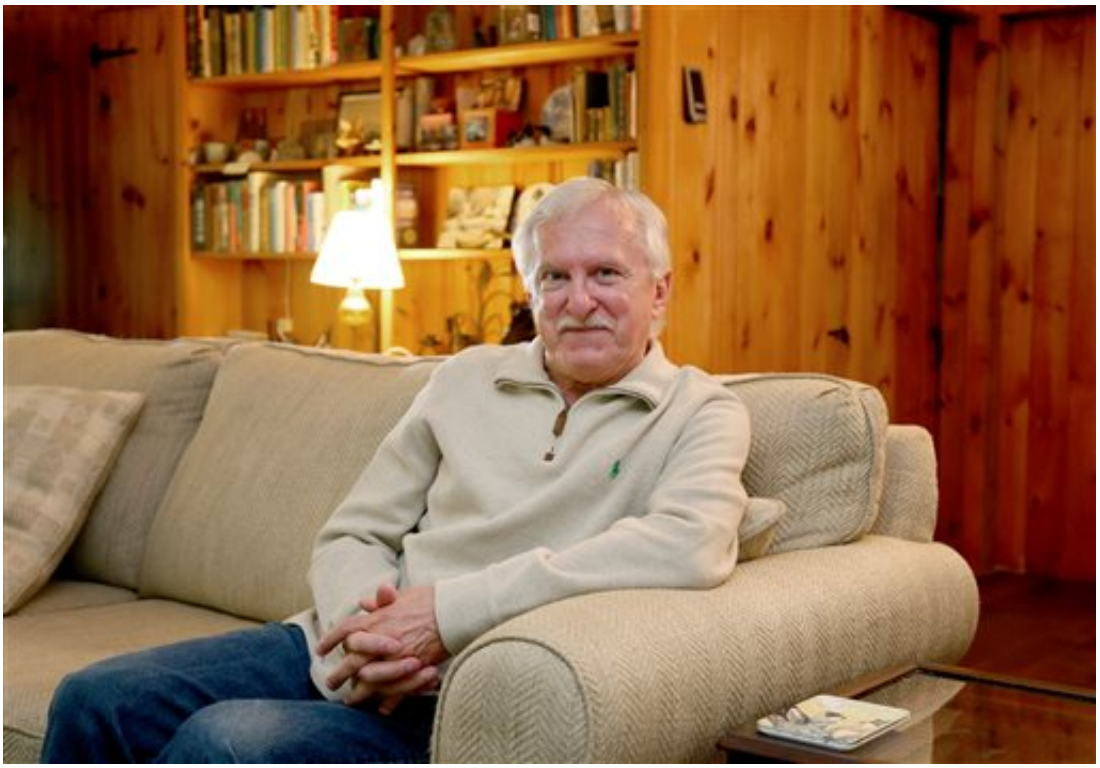
The Nobel announcements continue with literature on Thursday, the Nobel Peace Prize on Friday and the economics award on Monday.

In this Wednesday, May 8, 2013, photo, provided by Howard Hughes Medical Institute, Paul Modrich poses for a photo at Howard Hughes Medical Institute's Janelia Farm Research Campus in Ashburn, Va. Modrich, an American, along with Swedish scientist Tomas Lindahl and U.S.-Turkish national Aziz Sancar won the Nobel Prize in chemistry, Wednesday, Oct. 7, 2015, for showing how cells repair damaged DNA, work that's inspired the development of new cancer treatments. (Kevin Wolf/Howard Hughes Medical Institute via AP)

Paul Modrich sits with his dog Dover on the front porch of his vacation home, Wednesday, Oct. 7, 2015, in Rumney, N.H. Modrich, an investigator at Howard Hughes Medical Institute and professor at Duke University School of Medicine in Durham, N.C., is one of three scientists who won the Nobel Prize in chemistry on Wednesday for showing how cells repair damaged DNA, work that has inspired the development of new cancer treatments. (AP Photo/Mary Schwalm)



Paul Modrich poses for a photo at his vacation home, Wednesday, Oct. 7, 2015, in Rumney, N.H. Modrich, an investigator at Howard Hughes Medical Institute and professor at Duke University School of Medicine in Durham, N.C., is one of three scientists who won the Nobel Prize in chemistry on Wednesday for showing how cells repair damaged DNA, work that has inspired the development of new cancer treatments. (AP Photo/Mary Schwalm)



Paul Modrich poses for a photo on a couch at his vacation home, Wednesday, Oct. 7, 2015, in Rumney, N.H. Modrich, an investigator at Howard Hughes Medical Institute and professor at Duke University School of Medicine in Durham, N.C., is one of three scientists who won the Nobel Prize in chemistry on Wednesday for showing how cells repair damaged DNA, work that has inspired the development of new cancer treatments. (AP Photo/Mary Schwalm)