

# IZS Colloquium

University of Hamburg, Department of Biology  
Institute for Animal Cell and Systems Biology (IZS)

**Date: 07.01.2026, 17:00**

**Location: Kosswig Saal / IZS (Martin-Luther-King-Platz 3)**

**Prof. Dr. Almut Nebel**

Institute of Clinical Molecular Biology / University of Kiel



***Insights into the genetics of human longevity***

Host: Tobias Lenz

## Abstract:

Have you ever wondered what it takes to stay healthy, sharp and independent into your 100s - and beyond? Human longevity is a complex phenotype shaped by a dynamic interplay between genes and environment. Which genetic variants tip the balance between a long life or age-related disease and early death? Which molecular pathways help turn ordinary mortals into modern-day Methuselahs? These are the questions at the heart of our research.

Our work is grounded in one of the world's most comprehensive genetic resources on human longevity: DNA samples from more than 1,600 German individuals aged 95 and older, including around 750 centenarians. Over the past two decades, our findings, together with those of others, have converged on a striking insight: Most longevity-associated variants cluster in genes that regulate metabolism, acting either as mortality risk factors or as pro-longevity determinants.

Yet this discovery opens up a deeper mystery. Why have these genetic variants been maintained in the gene-pool? To answer this, we turn to paleogenomics, tracing the evolutionary and demographic history of longevity-associated genes across 10,000 years of European ancestry. By looking to the past, we uncover how survival strategies of our ancestors still influence our longevity potential today - for better or worse.

## More info:

<https://www.ikmb.uni-kiel.de/research-group/longevity-ancient-dna-research/>