

Chickens and turkeys 'closer to dinosaur ancestors' than other birds

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Credit: Yathin S Krishnappa

New research from the University of Kent suggests that chickens and turkeys have experienced fewer gross genomic changes than other birds as they evolved from their dinosaur ancestor.

Professor Darren Griffin and a team at the University's School of Biosciences have conducted research that suggests that chromosomes of

the chicken and turkey lineage have undergone the fewest number of changes compared to their ancient avian [ancestor](#), thought to be a [feathered dinosaur](#).

The Kent research is part of a study by a consortium of leading scientists into avian or bird genomes, which tell a story of species evolution. The living descendants of [dinosaurs](#) were thought to have undergone a rapid burst of evolution after most [dinosaur species](#) were wiped out. The detailed family tree of modern birds has however confused biologists for centuries and the molecular details of how birds arrived at the spectacular biodiversity of more than 10,000 species is barely known.

Professor Griffin explained: 'Bird genomes are distinctive in that they have more tiny microchromosomes than any other vertebrate group. These small packages of gene-rich material are thought to have been present in their dinosaur ancestors.'

'We found that the chicken has the most similar overall chromosome pattern to its avian dinosaur ancestor.'

The research, which formed part of a vast study carried out over the past four years by the international Avian Phylogenomics Consortium, involved the analysis of the whole [genome](#) structure of the chicken, turkey, Pekin duck, zebra finch and budgerigar.

Professor Griffin and the other leaders of the research team—Kent colleague Dr Michael Romanov as well as Dr Denis Larkin and Dr Marta Farré from the Royal Veterinary College, University of London - studied data from a total of 21 avian genomes and one reptile species. The team focused on the six best-assembled genomes to put together a karyotype - organised profile - of the dinosaur ancestor for each chromosome.

The researchers also found that the fastest rate of change had occurred

in the [zebra finch](#) and budgerigar, consistent with more rapid speciation events in songbirds and their relatives.

More information: The research paper, entitled Reconstruction of gross avian genome structure, organization and evolution suggests that the chicken lineage most closely resembles the dinosaur avian ancestor, is published in the open access journal *BMC Genomics* on 11 December 2014. See: www.biomedcentral.com/1471-2164/15/1060

Provided by University of Kent

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