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Romanov, Michael N, Ellegren, Hans and Dodgson, Jerry B (2001) Polymerase chain reaction amplified markers for bird sexing. In: International Plant and Animal Genome IX Conference, 13-17 January 2001, San Diego, CA, USA.

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Plant & Animal Genome IX Conference

Town & Country Hotel, San Diego, CA, January 13-17, 2001.

Poster: General

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POLYMERASE CHAIN REACTION AMPLIFIED MARKERS FOR BIRD SEXING

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Female birds are heterogametic (Z/W), while males are homogametic (Z/Z). PCR assays are often useful in sexing avian species, especially at hatch or *in ovo*. Two previously described assays are based on differences between the Z and W copy of the chicken chromodomain-helicase DNA-binding protein gene (CHD1Z and CHD1W). Applicability of these assays were tested in five other galliforms: red junglefowl, turkey, peafowl, bobwhite quail and common quail, and one waterfowl, mallard. Using primers described by Fridolfsson and Ellegren (1999), males of all galliform species studied displayed one 450-bp, Z-specific fragment, whereas females showed both CHD1Z (450-bp) and CHD1W (600-bp) fragments. Both mallard sexes yielded a single product of 600 bp. Using primers designed by Kahn and Quinn (1999), three species, red junglefowl, turkey and peafowl, displayed one Z-specific fragment (240 bp) in males and two fragments (240 and 265 bp) in females. Only a single fragment was obtained, irrespective of sex, in bobwhite quail (250 bp), common quail (275 bp) and mallard (240 bp). By screening a chicken BAC library with a CHD1W genomic fragment, two overlapping BAC inserts were obtained that, by PCR analysis, appear to contain the chicken CHD1Z gene. To date, we have been unable to identify a CHD1W-containing BAC in our library. Additional BAC analysis is underway.

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