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Identification and tissue distribution by *in-silico* analysis and RT-qPCR expression profiling of chicken c-type lectin-like domain containing proteins



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We investigated

- Genes in the chicken genome encoding c-type lectin-like domain containing proteins (CTLDcps)
- Gene validation by tissue expression profiling of identified CTLDcps in respiratory tissue and spleen

We found

- 15 novel chicken CTLDcps of which CLEC17AL-A and -B belong to group II C-type lectins
- An avian specific expansion of group V C-type lectins
- Differential tissue expression of identified CTLDcps

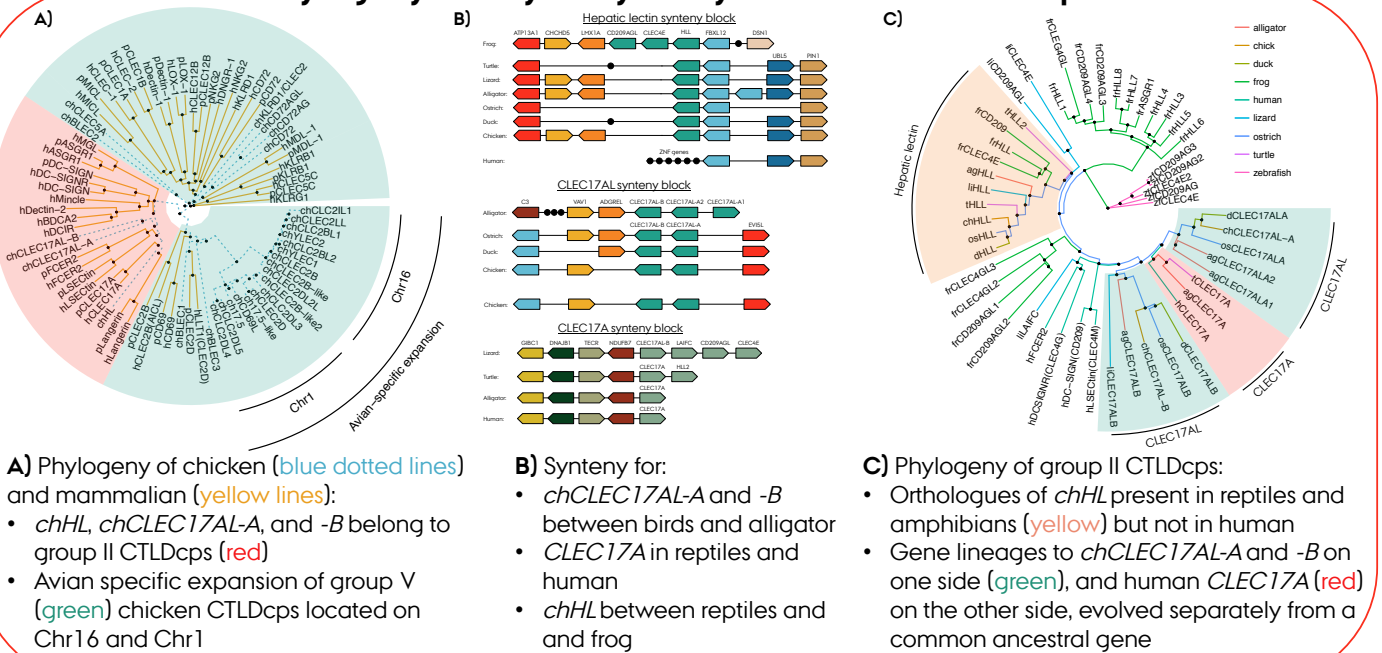
Why

- To find CTLDcps in the chicken genome and potential mammalian orthologues
- Verification of mRNA expression in respiratory tissues and spleen

How

- In silico* analysis (GRCq6a):
- BLASTp
 - Synteny analysis
 - Phylogenetic analysis
- RT-qPCR:
- B15 day-old chicks (n=3)
 - Tissues: NALT Trachea Lung Spleen

Phylogeny and synteny analysis of chicken CTLDcps



RT-qPCR expression profiling in respiratory tissue and spleen

Table 1. Gene names, NCBI symbols, protein accession number, and genomic location

Gene name	NCBI symbol	Protein refseq	Chr	Genomic location
CLEC2D5	CLEC2D5	XP_015128576.1	1	NC_006088.5 (21888-35006)
CLEC2B-like	LOC107049947	XP_025058929.1	1	1:NC_006088.5 (194192-195843, complement)
CLEC2D4	CLEC2D4	XP_025090560.1	1	NC_006088.5 (45693-56400)
CD69L	CD69L	XP_015154933.2	1	NC_006088.5 (237200-246154)
CLEC2D2	CLEC2D3	NP_001264787.1	1	NC_006088.5 (301435-303113)
CLEC2D	LOC101747821	XP_015128259.1	1	NC_006088.5 (217130-221977)
CLEC2D2	CLEC2D2	XP_015156592.1	16 (Unlocal. Scaffold)	HWI001997581.1 (115489-12304), complement)
CLEC2B-like2	LOC101747901	XP_025051170.1	16	NC_006103.5 (1965499-1987472, complement)
CLEC2B1	CLEC2B2	XP_015150564.1	16	NC_006103.5 (1997252-2000939, complement)
CLEC2B1	CLEC2B1	XP_015157579.1	16	NC_006103.5 (2025330-2028494)
CLEC2L	CLEC2L	XP_025051184.3	16	NC_006103.5 (1988931-1997406, complement)
CLEC2B	LOC100859902	XP_025051177.3	16	NC_006103.5 (2059134-2099604)
CLEC2D-like	LOC107056497	XP_015150563.2	16	NC_006103.5 (2238108-2438953, complement)
CLEC2L	CLEC2L	XP_015157574.1	16	NC_006103.5 (2107090-2109214)
BLEC3	BLEC3	NP_001300626.1	16	NC_006103.5 (2443806-2447961, complement)
CD72AC2	CD72AC2L	XP_001231206.2	2	NC_006127.5 (9061547-9065031)
CLEC5A	CLEC5A	XP_0030443020.1	2	NC_006127.5 (9069752-9071837, complement)
HLL	Hepatic lectin	NP_990815.1	30	NC_028739.2 (1043772-1067914)
CLEC17AL-A	FEBR2	XP_0030443419.1	30	NC_028739.2 (595219-599514)
CLEC17AL-B	CLEC17A	XP_423779.5	30	NC_028739.2 (599757-604620)

- Fold change in log scale (95% CI) compared to *CLEC5A* expression in trachea
- Differential expression of chicken CTLDcps in respiratory tissue and spleen
- High overall expression of *17.5-like*, *CD69L*, and *CLEC2D-like*
- High expression of *CLEC17AL-A* and *-B* in spleen
- High expression of *CLEC17AL-A* in trachea

