A

CRYL1 (HsaEX0017384)   **KIF1B (HsaEX0034475)**

Legend:
- C1 exon
- A exon
- C2 exon
- Rest
- Rest (modeled)

B

Alternative exons
(VastDB)

↓ genomic coordinates mapping

**Protein sequences
(Ensembl)**

↓ BLASTP + 3D gap masking

Structure in PDB?

YES → Rank by event coverage → **Protein structures (PDB)**

NO → ENSEMBL isoform selection → Preliminary models (Phyre2) → Structure validation (ProSA) + Rank by event coverage → **Structural models (Phyre2)**

C
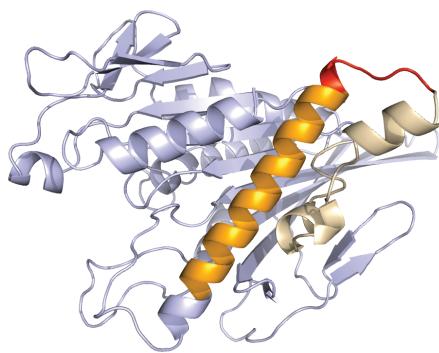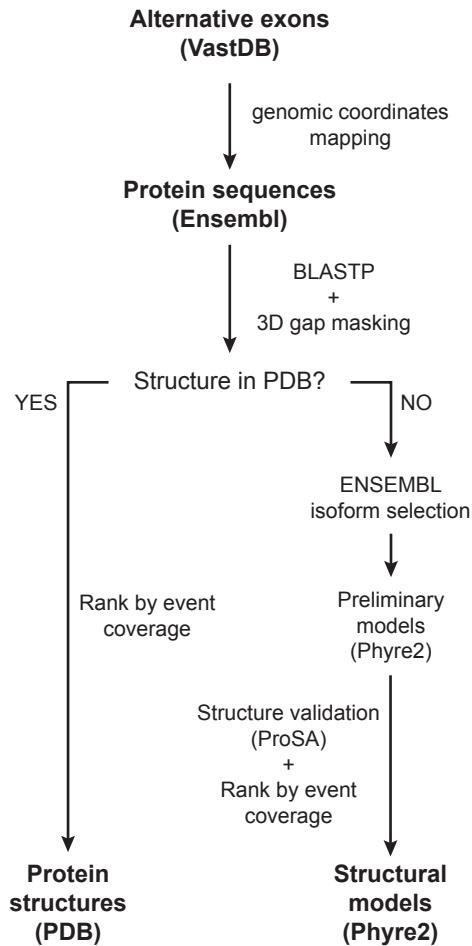
Human PDB mappings
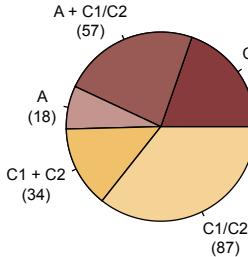(n = 2,465)

- A + C1/C2 (506)
- A (113)
- C1 + C2 (334)
- C1/C2 (798)
- C1 + A + C2 (714)

Human models
(n = 5,741)

- A + C1/C2 (829)
- A (79)
- C1 + C2 (89)
- C1/C2 (3,158)
- C1 + A + C2 (1,586)

Mouse PDB mappings
(n = 244)

- A + C1/C2 (57)
- A (18)
- C1 + C2 (34)
- C1/C2 (87)
- C1 + A + C2 (48)

Mouse models
(n = 5,268)

- A + C1/C2 (729)
- A (60)
- C1 + C2 (611)
- C1/C2 (2,493)
- C1 + A + C2 (1,375)
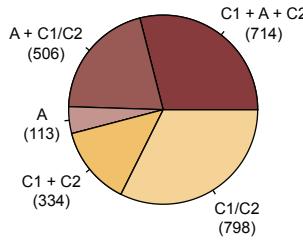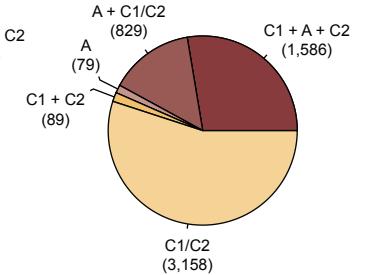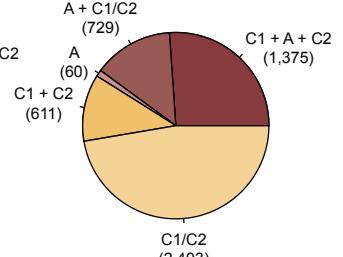
Chicken PDB mappings
(n = 24)

- A + C1/C2 (2)
- C1 + C2 (7)
- C1/C2 (5)
- C1 + A + C2 (10)

Chicken models
(n = 4,830)

- A + C1/C2 (549)
- A (26)
- C1 + C2 (1,044)
- C1/C2 (1,835)
- C1 + A + C2 (1,376)
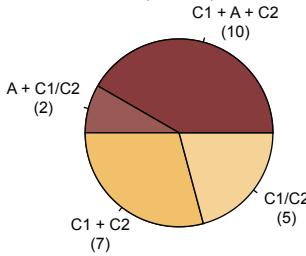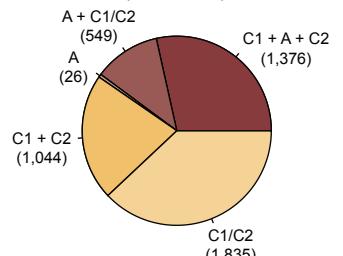
Supplemental Figure S22 – Structural analysis of AS events in VastDB

A) Examples of two proteins structures with alternative (A, red) and neighboring (C1 [orange] and C2 [beige]) exons mapped: HsaEX0017384, in the *CRYL1* gene, in an experimentally determined structure (PDB ID: 3F3S), and HsaEX0034475, in the *KIF1B* gene, in a modeled structure. B) Schematic representation of the pipeline used to map exons to PDB protein structures or to models done with Phyre2. C) Pie charts displaying the number of AltEx events covered in PDB or modeled protein structures for human (top), mouse (center) and chicken (bottom).