#### Supplementary Data legends

### Data 1

Overview of the generated sequencing data

### Data 2

Comparison of assembly completeness

#### Data 3

Species and assemblies used for the limb study

### Data 4

Tegu lizard genomic coordinates and additional information of all 5,439 snake-diverged CNEs. **Data 5** 

Tegu lizard genomic coordinates of the regulatory domains of 439 genes involved in limb development.

### Data 6

Tegu lizard genomic coordinates of the regulatory domains of 439 genes involved in limb development.

### Data 7

Tegu lizard genomic coordinates of tegu limb-specific ATAC-seq peaks.

## Data 8

Enrichment of snake-diverged CNEs with regulatory datasets.

## Data 9

Mouse and Tegu lizard genomic coordinates of experimentally validated limb enhancers.

### Data 10

Enrichment of snake-diverged CNEs with eye regulatory datasets.

### Data 11

Species and assemblies used for the eye study

### Data 12

Mouse mm10 genomic coordinates and additional information of all 9,364 CNEs diverged in the vision-impaired subterranean mammals.

### Data 13

Mouse mm10 genomic promoter coordinates of 64 diverged eye-related genes.

# Data 14

Enrichment of CNEs diverged in vision-impaired subterranean mammals with all MGI phenotypes.

### Data 15

Enrichment of CNEs diverged in vision-impaired subterranean mammals with MGI phenotypes, after excluding the 64 diverged eye-related genes.

# Data 16

Mouse mm10 genomic coordinates of eye-specific ATAC-seq peaks.

### Data 17

Enrichment of CNEs diverged in vision-impaired subterranean mammals with regulatory datasets.

### Data 18

Overlap between conserved and non-conserved limb regulatory elements with genital regulatory elements.

#### Data 19

Transcription factor motif clusters.

#### Data 20

List of limb-related transcription factors and their respective binding motifs.

#### Data 21

List of eye-related transcription factors and their respective binding motifs.

#### Data 22

CNE sequences that were tested in luciferase assays.

#### Data 23

List of softwares, versions, and corresponding parameters used for all analyses.