

Virtual assessment for the study of the cranial fractures.

Application to the Sima de los Huesos hominin crania

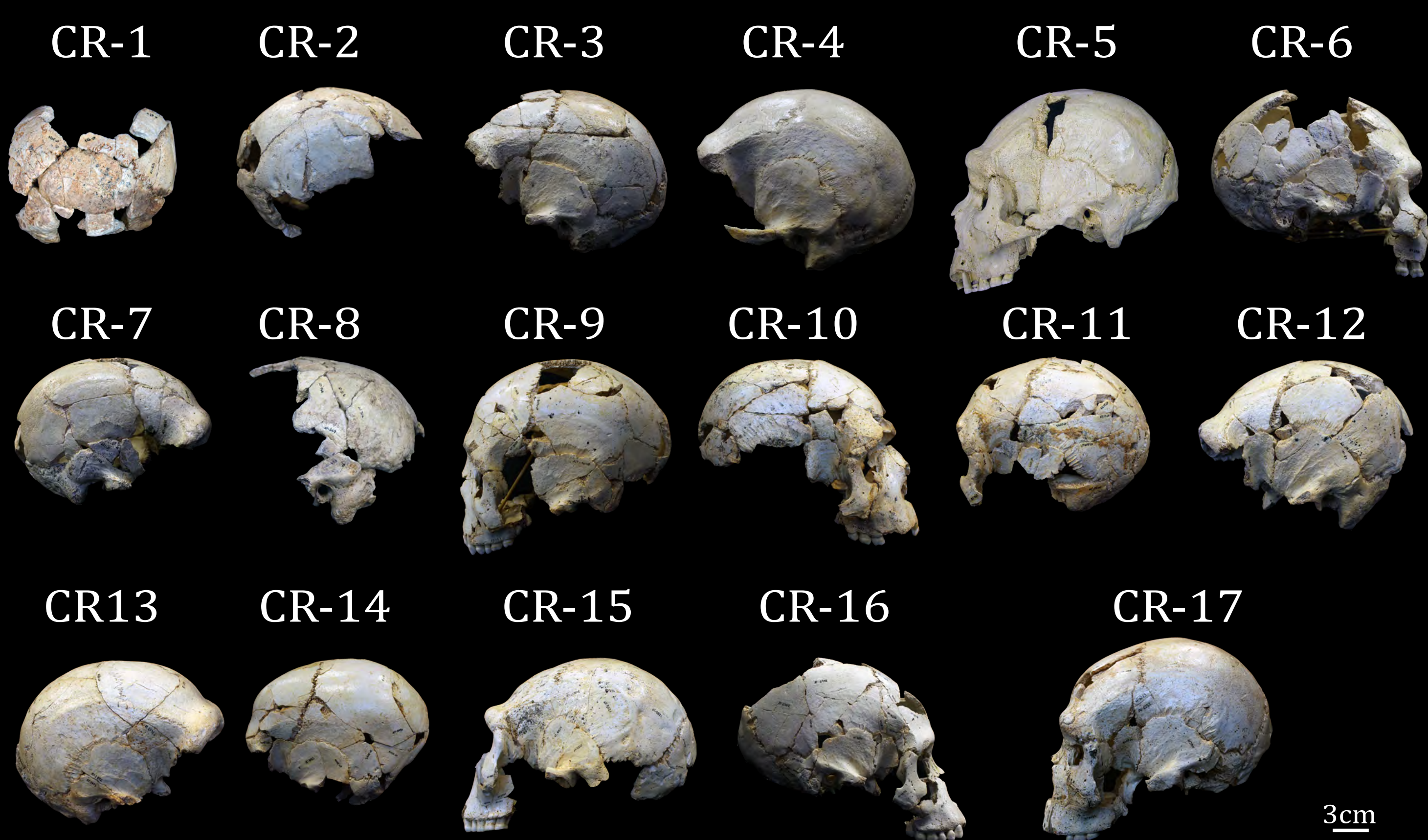
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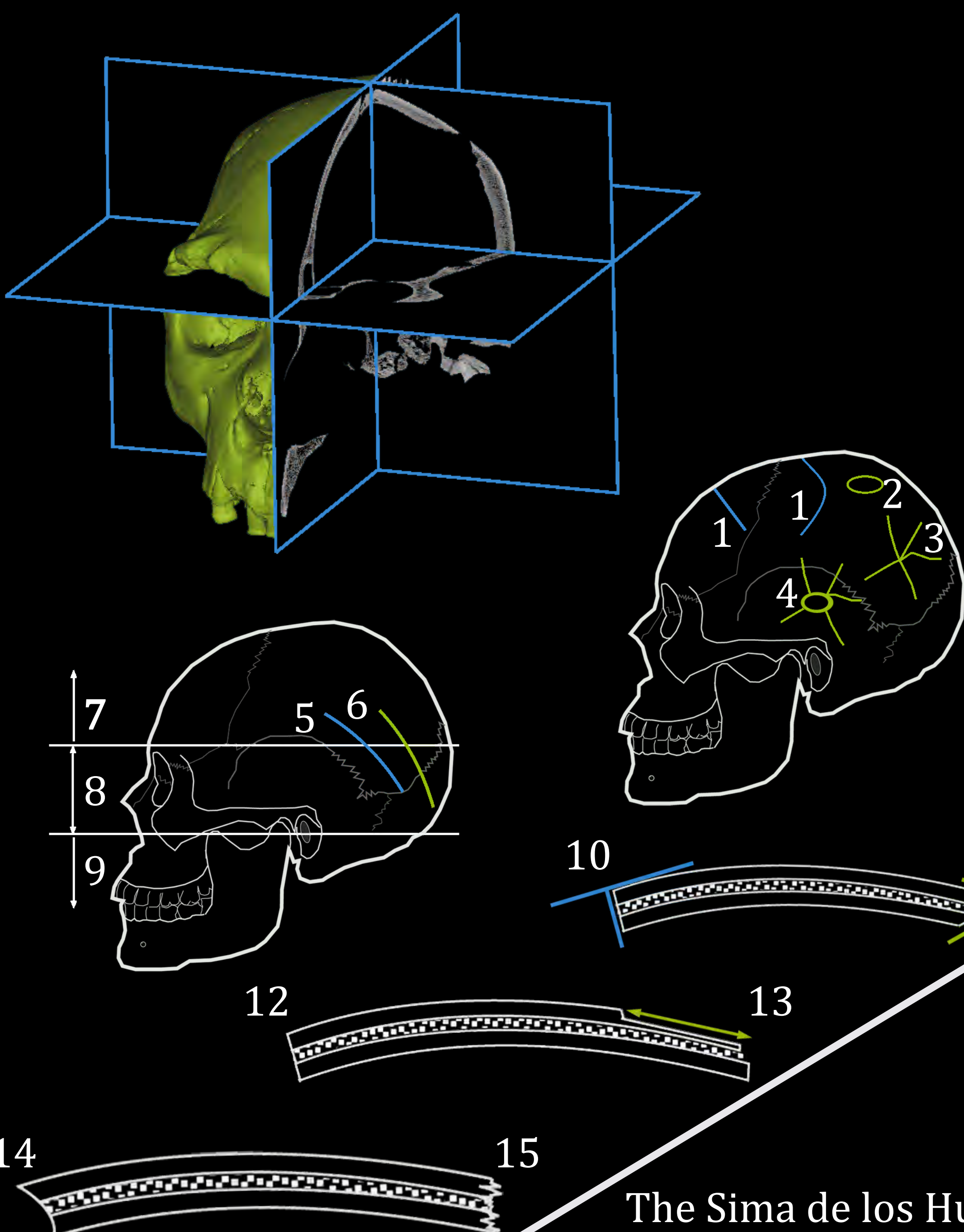
ABSTRACT

The Sima de los Huesos (SH) site has provided the largest collection of hominin crania in the fossil record, offering an unprecedented opportunity to perform a complete Forensic-Taphonomic study on a population from the Middle Pleistocene. The fractures found in seventeen crania from SH display a postmortem fracturation pattern, which occurred in the dry bone stage and is compatible with collective burial assemblages. Nevertheless, in addition to the postmortem fractures, eight crania also display some typical perimortem traumas. By using CT images we analyzed these fractures in detail. Interpersonal violence as a cause for the perimortem fractures can be confirmed for one of the skulls, Cranium 17 and also probable for Cranium 5 and Cranium 11. For the rest of the crania, although other causes cannot be absolutely ruled out, the violence-related traumas are the most plausible scenario for the perimortem fractures. If this hypothesis is confirmed, we could interpret that interpersonal violence was a recurrent behavior in this population from the Middle Pleistocene.

MATERIAL



METHODS



- Fracture outline
 1. Linear
 2. Depressed
 3. Stellate
 4. 2+3
- Trajectory
 5. Not cross suture
 6. Crossing suture
- Location
 7. Above HBL
 8. HBL
 9. Below HBL
- Fracture angle
 10. Right
 11. Oblique
- Cortical delamination
 12. Absence
 13. Presence
- Fracture texture
 14. Smooth
 15. Jagged

CONCLUSIONS

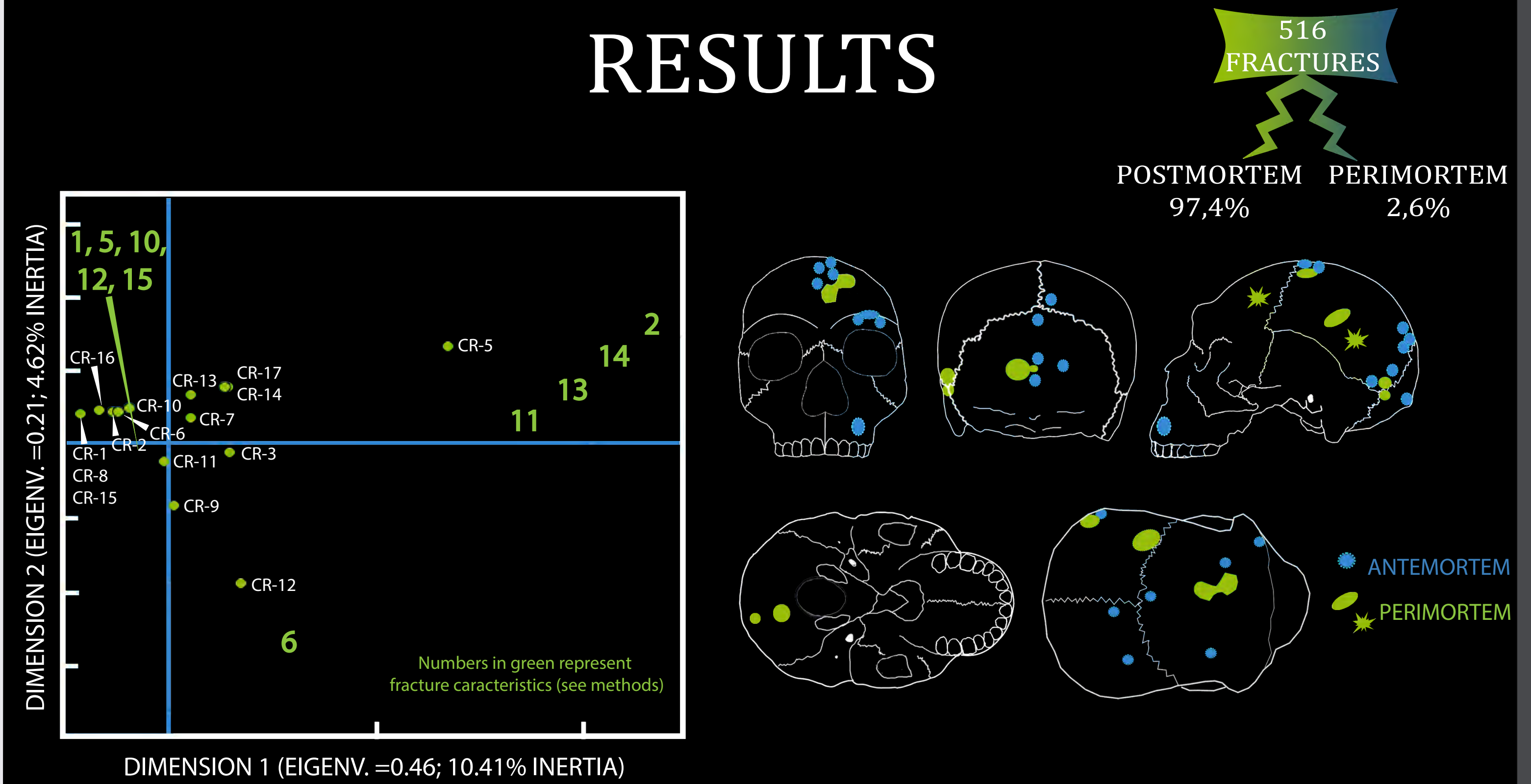
The Sima de los Huesos hominin crania mainly display postmortem fracturation.

The fracture pattern is compatible with collective burial assemblages.

In addition, eight crania also display some typical perimortem traumas.

Violence-related causes are the most plausible scenario for the perimortem traumas.

RESULTS



All scale bars = 1cm

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