

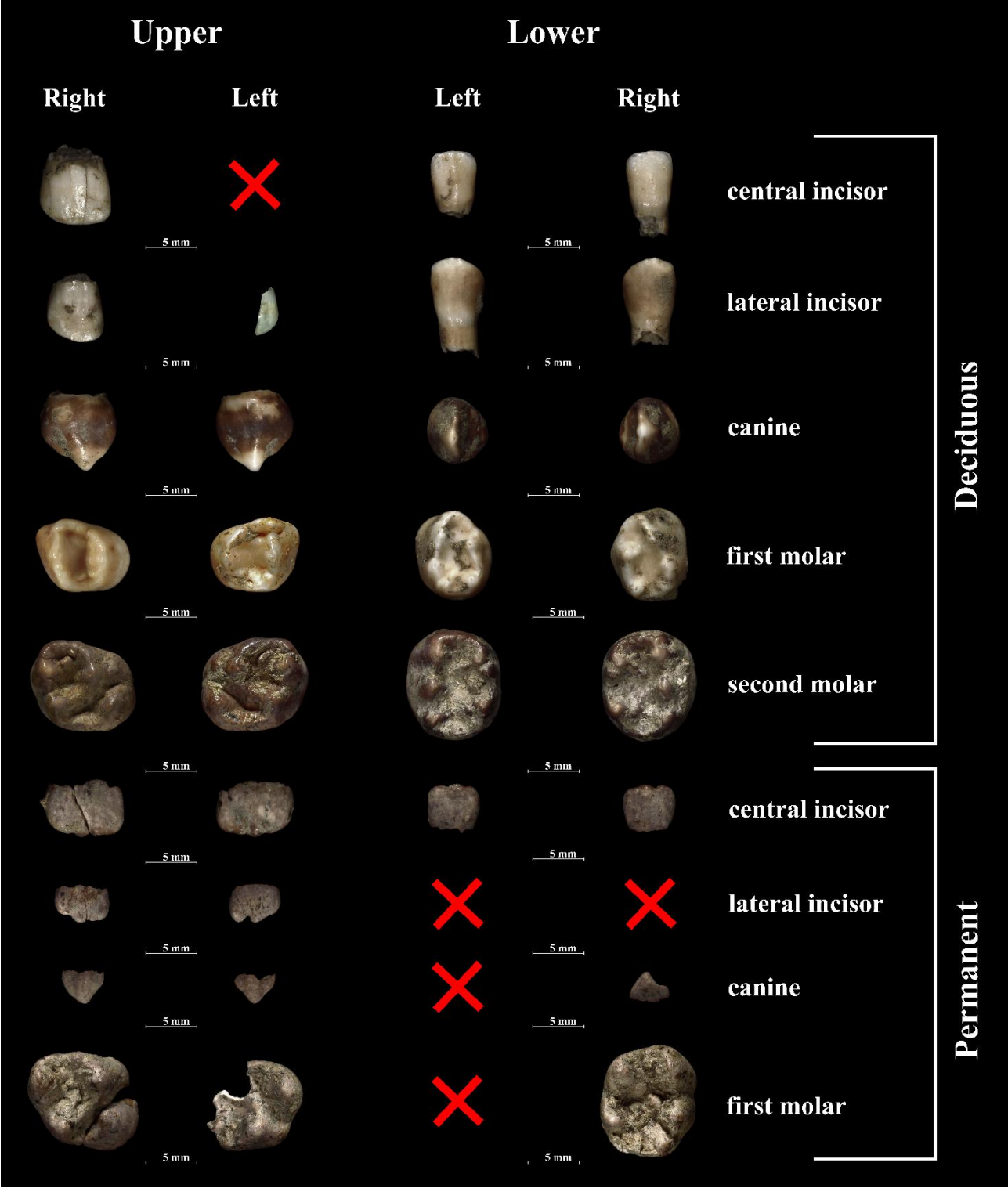
Supplementary Information

Reconstructing Life History and Ancestry from poorly preserved skeletal remains: A Bioanthropological study of a Copper Age Infant from Faenza (RA, Italy)

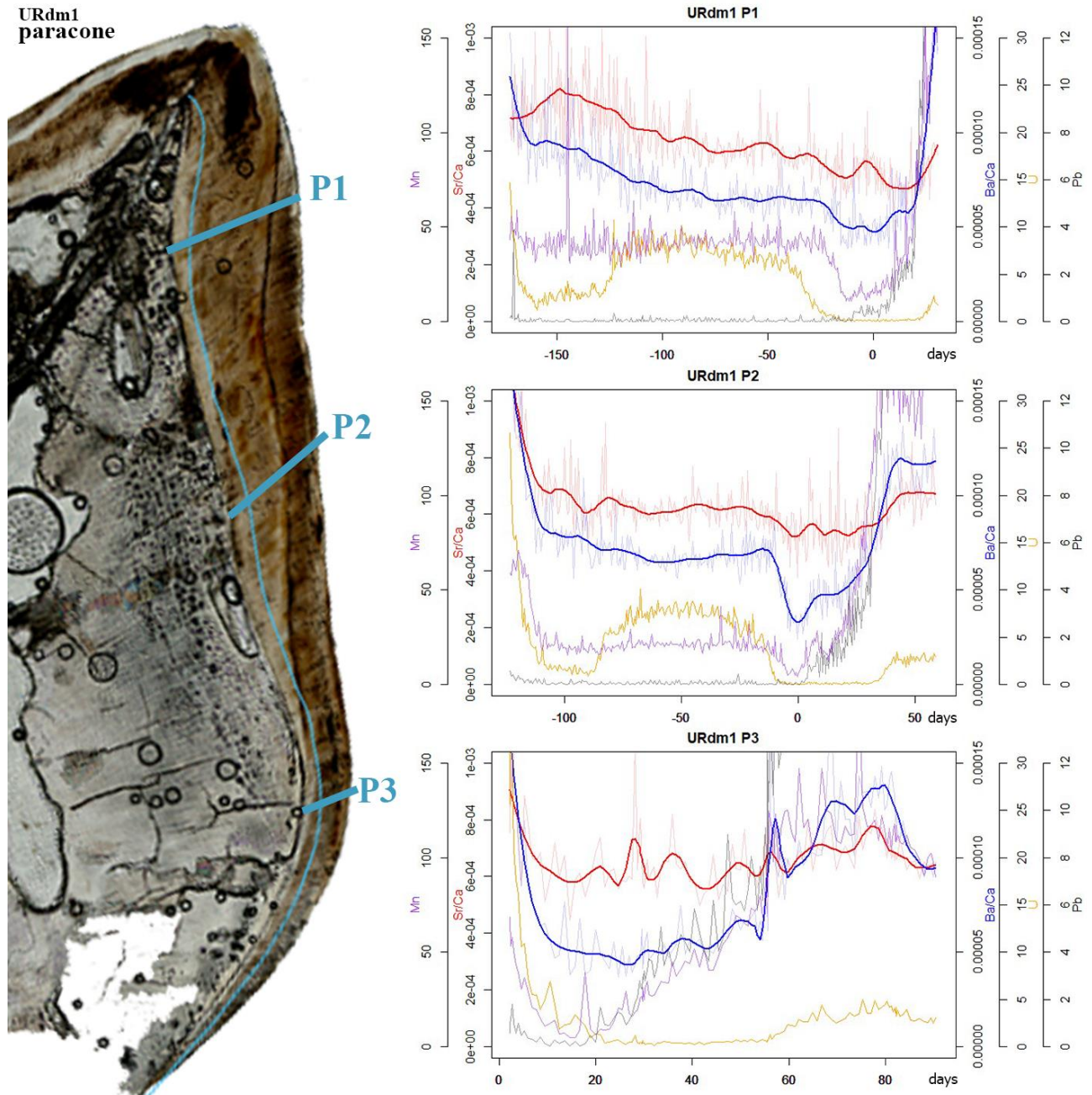
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Supplementary Figure 1 Overview of the deciduous and permanent teeth from the Faenza burial. The teeth are organised by their anatomical position (upper vs. lower and right vs. left) and type (incisors, canines, and molars), with missing teeth indicated by red crosses. Anterior teeth (incisors and canines) are displayed in labial view, while posterior teeth (molars) are shown in occlusal view. The deciduous teeth are located in the upper rows, while the permanent teeth are in the lower rows. Scale bars are provided for each set of teeth, representing 5 mm.



Supplementary Figure 2 Trace element profiles of Sr/Ca, Ba/Ca, U, Mn, and Pb measured following general local prism directionality of the buccal aspect of the paracone of the upper right deciduous first molar (URdm1). The picture on the left displays the buccal portion of the histological section of the URdm1, with the laser ablation tracks highlighted in light blue. The profiles on the right represent the trace element distributions measured along P1 (shown in the top graph), P2 (shown in the central graph), and P3 (shown in the bottom graph). The trace elements include Sr/Ca (red), Ba/Ca (blue), U (purple), Mn (yellow), and Pb (grey). The X-axis represents days of life, with 0 representing birth.



Supplementary Table 1 Stages of dental crown formation and corresponding age estimates for the individual from Faenza. The dental classes are presented with their respective stages of formation, alongside the minimum, median, and maximum ages (in years) based on modern averages published by AlQahtani et al. (2010). Teeth with broken crowns/roots, where the stage of formation is uncertain and potentially more advanced, are indicated in italics and the corresponding modern standards are not conveyed. Intact teeth that could be reliably used for the age at death estimation are highlighted in bold. "X" indicates missing teeth, and "\" indicates teeth that were too fragmented to assess.

Dental Class	Stage of formation	Min	Median	Max	Dental Class	Stage of formation	Min	Median	Max
<i>URdi1</i>	> Crc	\	\	\	<i>LRdi1</i>	> R 1/4	\	\	\
<i>ULdi1</i>	X	X	X	X	<i>LLdi1</i>	> Crc	\	\	\
<i>URdi2</i>	> Crc	\	\	\	<i>LRdi2</i>	> R 1/4	\	\	\
<i>ULdi2</i>	\	\	\	\	<i>LLdi2</i>	> R 1/4	\	\	\
<i>URdc</i>	> Crc	\	\	\	<i>LRdc</i>	> Crc	\	\	\
<i>ULdc</i>	> Crc	\	\	\	<i>LLdc</i>	> Crc	\	\	\
<i>URdm1</i>	> Crc	\	\	\	<i>LRdm1</i>	> Crc	\	\	\
<i>ULdm1</i>	> Crc	\	\	\	<i>LLdm1</i>	> Crc	\	\	\
<i>URdm2</i>	> Crc	\	\	\	<i>LRdm2</i>	> Crc	\	\	\
<i>ULdm2</i>	> Crc	\	\	\	<i>LLdm2</i>	> Crc	\	\	\
URI1	Cr 1/2	0.625	1.5625	2.5	LRI1	Cr 1/2	0.625	1.5625	2.5
ULI1	Cr 1/2	0.625	1.5625	2.5	LLI1	Cr 1/2	0.625	1.5625	2.5
URI2	Coc	1.5	2	2.5	LRI2	X	X	X	X
ULI2	Coc	1.5	2	2.5	LLI2	X	X	X	X
URC	Coc	1.5	1.5	1.5	LRC	Coc	1.5	2.5	3.5
ULC	Coc	1.5	1.5	1.5	LLC	X	X	X	X
URM1	Cr 1/2	1.5	2.5	3.5	LRM1	Cr 1/2	1.5	2.5	3.5
ULM1	Cr 1/2	1.5	2.5	3.5	LLM1	X	X	X	X

Supplementary Table 2 Dental secretion rates (DSR) and enamel extension rates (EER) for the cuspal and imbricational enamel of the paracone on the upper right deciduous first molar (URdm1). The table presents the minimum, maximum, mean, standard deviation (sd), and sample size (n) for both DSR and EER. Enamel Initiation (EI) indicates when enamel formation began in the cuspal and imbricational portions, Enamel Completion (EC) marks when enamel formation was completed in these regions, and Enamel Formation Time (EFT) represents the total duration of enamel formation in the cuspal and imbricational portions of the crown enamel.

		URdm1 paracone	
		Cuspal	Imbricational
DSR (μmd^{-1})	Min	2.68	2.74
	Max	3.66	3.69
	Mean	3.14	3.11
	sd	0.17	0.17
	n	94	82
EER (μmd^{-1})	Min	10.15	4.95
	Max	51.22	20.76
	Mean	20.76	9.20
Ei (days)		-184	-30
Ec (days)		-30	189
EFT (days)		154	219