Table 1. Original articles on IL-1β polymorphism, orthodontic tooth movement and ERR

Author	Study design	Year	Country	Journal
LR Iwasaki	Balanced incomplete block design with randomly assigned stress	2001	USA, Lincoln	Arch Oral Biol
LR Iwasaki		2005	USA, Lincoln	Am J Orthod Dentofacial Orthop
LR Iwasaki		2006	USA, Lincoln	Am J Orthod Dentofacial Orthop
LR Iwasaki		2009	USA, Lincoln	Orthod Craniofac Res
M Yamaguchi	Cases and controls	2006	Chiba, Japan	Eur J Orthod
Al-Qawasmi	Cases and controls	2003	USA, Michigan	American Journal of Orthodontics and Dentofacial Orthopedics
E. M. Bastos Lages	Cases and controls	2009	Brazil, Belo Horizonte	American Journal of Orthodontics and Dentofacial Orthopedics
A. Iglesias-Linares	Cases and controls	2012	Spain, Seville	Journal of Endodontics
F. Lince Vides	Cases and controls	2016	Colombia	Int. J. Odontostomat.

Table 2. Evaluation of IL 1β and orthodontic tooth movements: cases and controls

Author	Participants (sex, age)	Orthodontic treatment	Movement speed	Time	Sample features	Genetic Results
LR Iwasaki, 2001[50]	n = 7	Extraction of first upper premolar and continuous mechanical forces for the retraction of maxillary canines	Canine retraction at average speeds of 1.27 and 0.87 mm per month for 13 and 4 kPa stress, respectively.	Days 0, 1 and 3, followed by intervals of 14 days up to day 84.	Mesial and distal GCF of each experimental maxillary canine and one untreated individual (control).	Experimental Activity Index (AI) (IL-1b: IL-1RA). IL-1b 634 ng/g of protein, IL-1RA was 173 µg/g of protein.
LR Iwasaki, 2005[41]	n = 10 (3 male, 7 female, 10 years 5 months to 30 years 11 months.	Continuous maxillary canine retraction forces of 13 kPa and 4, 26 or 52 kPa bilaterally	Movement speed: with 52 kPa was 0.065 mm/day and with 13 and 26 kPa, 0.038 and 0.035 mm/day.	Days 0, 1 and 3, and then intervals of 14 days up to day 84.	Mesial and distal GCF of each experimental maxillary canine, and of one untreated individual (control).	The proportion of IL-1β and IL-1RA in GCF accounted for 56% of the variance in v_t in growing subjects and 72% in adult subjects.
LR Iwasaki, 2006[4]	n = 10 (5 male, 5 female, 15 years old (±3 years, 8 months)	Bilateral removal of first upper premolars and distal movement of maxillary canines, with passive anchorage devices attached to the upper posterior teeth, and a custom vertical loop.	Canine retraction with average speeds of 4.14±0.19, 6.36±1.32 and 5.66±1.38 mm distal movement on day 84 for 13, 26 and 52 kPa respectively	Days 0, 1 and 3, and then intervals of 14 days up to day 84.	Mesial and distal GCF of each experimental maxillary canine, and one untreated individual (control).	For growing subjects, SWB IL1RA was correlated with v_t (R=0.70-0.72), and for AI SWB and IL-1B the concentrations were correlated with AI GCF (R=0.73-0.78)
LR Iwasaki 2009[61]	n = 33 (21 female and 12 male) 14.8 ± 3.9 years	Extraction of first maxillary premolars and distal movement of maxillary canines.	Distal compressive stresses of 4, 13, 26, 52 or 78 kPa on maxillary canines, and 0.063 mm/day as the maximum mean associated with tooth movement speed.	Days 0, 1 and 3, and then intervals from 14 days up to day 84.	GCF of two experimental sites, distal from each maxillary canine, and a control site, interproximal from a mandibular canine or an adjacent tooth.	Three important factors affected the speed at the 15% level: IL-1B genotype (+3954) (p = 0.039), AI (p = 0.0005) and IL-1RA
M Yamaguchi, 2006[62]	n = 9 (3 male, X = 21.3 ± 2.8 years; 6 female, X = 23.1 ± 2.4 years)	Removal of first upper premolars before placing supports and wires. Initial force of 250 g. The canine subjected to distal movement was used as experimental tooth and the contralateral canine served as control.	Tooth movement speed was 1.5 ± 0.4 mm for 168 hours (7 days).	First 168 hours (7 days) of treatment	Strips of paper inserted at 1 mm in the gingival sulcus for 1 minute	The mean values of SP and IL-1β for treated teeth were significantly higher after 8, 24 and 72 hours.

Crevicular Gingival Fluid (GCF)

Table 3. Evaluation of IL-1β and root resorption: cases and controls

Author	Orthodontic treatment	Root Resorption	Participants (age, gender)	Sample characteristics	Results
Al-Qawasmi, 2003[5]	Pretreatment and post-treatment time 2.82 years (SD±1.09)	Group of cases >2 mm and unaffected subjects <2 mm.	n = 118 (X = 12.1 years (SD ± 1.89), male 36, female 70)	Scaling with sterile nylon bristle brush on tooth with maximum ERR.	Group affected by ERR occurred on the IL-1B (1.1) genotype (72%), followed by the (1.2) genotype (39%); the lowest percentage (0%) was on the (2.2) genotype.
E. M. Bastos Lages, 2009[55]	During comprehensive orthodontic treatment (straight arch technique)	Group of cases (n = 23) with at least 1 maxillary incisor with ERR of >2mm, and Control group (n = 38), with ERR <2 mm in the central and lateral maxillary incisors.	n = 61 (X = 18.9 years (SD±5.2)	Scaling with sterile wooden spatula on oral mucosa	Polymorphism of the *IL-1B* gene is associated with root resorption
A. Iglesias-Linares, 2012[56]	Root canal treatment followed by full orthodontic treatment (straight arch technique). Time 27.21 months (±4.9 months)	Group of cases (n = 39) ERR presence >2 mm, Control group (n = 54) absence of ERR >2 mm after orthodontic treatment	n = 93 (X = 24 years 1 month (5 years, 5 months)	Intraoral scaling using a sterile mouth swab.	In the control group, frequencies of the *IL-1B* genotype were less common than in the group with the presence of RRE
F. Lince Vides, 2016[59]	Orthodontic post-treatment.	Group of cases (n = 13) had post-treatment ERR and Control group (n = 22) did not develop ERR at the end of orthodontic treatment.	n = 35 (X = 28.1 years (SD±11.5), male 11, female 24)	Scaling with sterile swab on the oral mucosa.	There was no statistically significant difference between the presence of *IL-1B* gene polymorphism and ERR (p = 0.0926)