

**Supplementary Table 2.** Schedule of clinical trial

	Screening	Treatment	Treatment	Treatment	Unscheduled visit
	Visit 1 (≥ -2 week)	Visit 2 (baseline)	Visit 3 (3 months)	Visit 4 (6 months)	
Visit day (± visit window)	-14-1 D	1 D	91 ± 14 D	181 ± 14 D	
Obtaining written consent	V				
Assign screening number	V				
Demographic information survey <sup>a)</sup>	V				
Investigation of medical history and drug administration <sup>b)</sup>	V				
Height and weight measurements	V				
Physical examination <sup>c)</sup>	V	V	V	V	V
Vital signs measurement	V	V	V	V	V
Laboratory test <sup>d)</sup>	V	V	V	V	(V)
Bone density measurement (DXA) <sup>e)</sup>	V				
Confirm inclusion/exclusion	V	V			
Randomization		V			
CTX, P1NP, vitamin D <sup>f)</sup>		V	V	V	
Quality of life assessment (EQ-5D-5L)			V	V	
Treatment satisfaction evaluation (5-point Likert scale)			V	V	
Prescribing test drug or control drug		V	V	V	V

<sup>a)</sup>Demographic information including birth date, menopausal age, smoking-related information (smoking amount, smoking period, smoking cessation days, smoking period before smoking cessation, smoking amount before cessation, etc.), alcohol consumption, and osteoporosis risk factors (family history of osteoporosis, history of osteoporosis-related fractures, height reduction, etc.) were investigated.

<sup>b)</sup>Based on the screening visit (visit 1), prior medications/medical history and current concomitant medications/diseases corresponding to the exclusion criteria were investigated.

<sup>c)</sup>Body temperature (tympanic membrane), pulse rate, and blood pressure were measured as vital signs.

<sup>d)</sup>Laboratory tests could be used if there were test results from the same institution within 4 weeks from the time of screening. Test items were as follows: (1) Hematology test: white blood cell (WBC), red blood cell, hemoglobin, hematocrit, platelet, WBC differential count (neutrophil, lymphocyte, monocyte, eosinophil, basophil); (2) Blood chemistry test: aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), total bilirubin, creatine phosphokinase, creatinine, blood urea nitrogen, total calcium, phosphorus, glucose, uric acid, total protein, albumin, total cholesterol, triglyceride; (3) Separate confirmation during screening: creatinine clearance (Cockcroft-Gault method); or (4) In visit 3, only AST, ALT, ALP, and triglyceride tests were performed.

<sup>e)</sup>Bone mineral density test (DXA) was confirmed as a medical record within 6 months from the time of screening.

<sup>f)</sup>During bone biochemistry test, the concentrations of CTX, P1NP, and vitamin D in the blood were measured through blood sampling in the same morning time zone as possible in a fasting state of at least 8 hours. Analysis was performed in the central lab.

DXA, dual energy X-ray absorptiometry; CTX, C-terminal telopeptide; P1NP, propeptide of type I collagen; EQ-5D-5L, EuroQol-5-dimensions 5-level.