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Part A:

Table S1. Rotational symmetry elements of the cubic system

$E^\beta = \begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{2x}^\beta = \begin{vmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{2y}^\beta = \begin{vmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{2z}^\beta = \begin{vmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$
$C_{31+}^\beta = \begin{vmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{vmatrix}$	$C_{32+}^\beta = \begin{vmatrix} 0 & 0 & -1 \\ 1 & 0 & 0 \\ 0 & -1 & 0 \end{vmatrix}$	$C_{33+}^\beta = \begin{vmatrix} 0 & 0 & -1 \\ -1 & 0 & 0 \\ 0 & 1 & 0 \end{vmatrix}$	$C_{34+}^\beta = \begin{vmatrix} 0 & 0 & 1 \\ -1 & 0 & 0 \\ 0 & -1 & 0 \end{vmatrix}$
$C_{31-}^\beta = \begin{vmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{vmatrix}$	$C_{32-}^\beta = \begin{vmatrix} 0 & 1 & 0 \\ 0 & 0 & -1 \\ -1 & 0 & 0 \end{vmatrix}$	$C_{33-}^\beta = \begin{vmatrix} 0 & -1 & 0 \\ 0 & 0 & 1 \\ -1 & 0 & 0 \end{vmatrix}$	$C_{34-}^\beta = \begin{vmatrix} 0 & -1 & 0 \\ 0 & 0 & -1 \\ 1 & 0 & 0 \end{vmatrix}$
$C_{4x+}^\beta = \begin{vmatrix} 1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & 1 & 0 \end{vmatrix}$	$C_{4y+}^\beta = \begin{vmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ -1 & 0 & 0 \end{vmatrix}$	$C_{4z+}^\beta = \begin{vmatrix} 0 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{4x-}^\beta = \begin{vmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & -1 & 0 \end{vmatrix}$
$C_{4y-}^\beta = \begin{vmatrix} 0 & 0 & -1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{vmatrix}$	$C_{4z-}^\beta = \begin{vmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{2a}^\beta = \begin{vmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{2b}^\beta = \begin{vmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{vmatrix}$
$C_{2c}^\beta = \begin{vmatrix} 0 & 0 & 1 \\ 0 & -1 & 0 \\ 1 & 0 & 0 \end{vmatrix}$	$C_{2d}^\beta = \begin{vmatrix} -1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{vmatrix}$	$C_{2e}^\beta = \begin{vmatrix} 0 & 0 & -1 \\ 0 & -1 & 0 \\ -1 & 0 & 0 \end{vmatrix}$	$C_{2f}^\beta = \begin{vmatrix} -1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & -1 & 0 \end{vmatrix}$

Table S2. Rotational symmetry elements of the hexagonal system

$E^\alpha = \begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{6z+}^\alpha = \begin{vmatrix} 1/2 & -\sqrt{3}/2 & 0 \\ \sqrt{3}/2 & 1/2 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{3z+}^\alpha = \begin{vmatrix} -1/2 & -\sqrt{3}/2 & 0 \\ \sqrt{3}/2 & -1/2 & 0 \\ 0 & 0 & 1 \end{vmatrix}$
$C_{2z}^\alpha = \begin{vmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{6z-}^\alpha = \begin{vmatrix} 1/2 & \sqrt{3}/2 & 0 \\ -\sqrt{3}/2 & 1/2 & 0 \\ 0 & 0 & 1 \end{vmatrix}$	$C_{3z-}^\alpha = \begin{vmatrix} -1/2 & \sqrt{3}/2 & 0 \\ -\sqrt{3}/2 & -1/2 & 0 \\ 0 & 0 & 1 \end{vmatrix}$
$C_{21+}^\alpha = \begin{vmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{22+}^\alpha = \begin{vmatrix} -1/2 & \sqrt{3}/2 & 0 \\ \sqrt{3}/2 & 1/2 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{23+}^\alpha = \begin{vmatrix} 1/2 & \sqrt{3}/2 & 0 \\ \sqrt{3}/2 & -1/2 & 0 \\ 0 & 0 & -1 \end{vmatrix}$
$C_{21-}^\alpha = \begin{vmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{22-}^\alpha = \begin{vmatrix} 1/2 & -\sqrt{3}/2 & 0 \\ -\sqrt{3}/2 & -1/2 & 0 \\ 0 & 0 & -1 \end{vmatrix}$	$C_{23-}^\alpha = \begin{vmatrix} -1/2 & -\sqrt{3}/2 & 0 \\ -\sqrt{3}/2 & 1/2 & 0 \\ 0 & 0 & -1 \end{vmatrix}$

Part B:

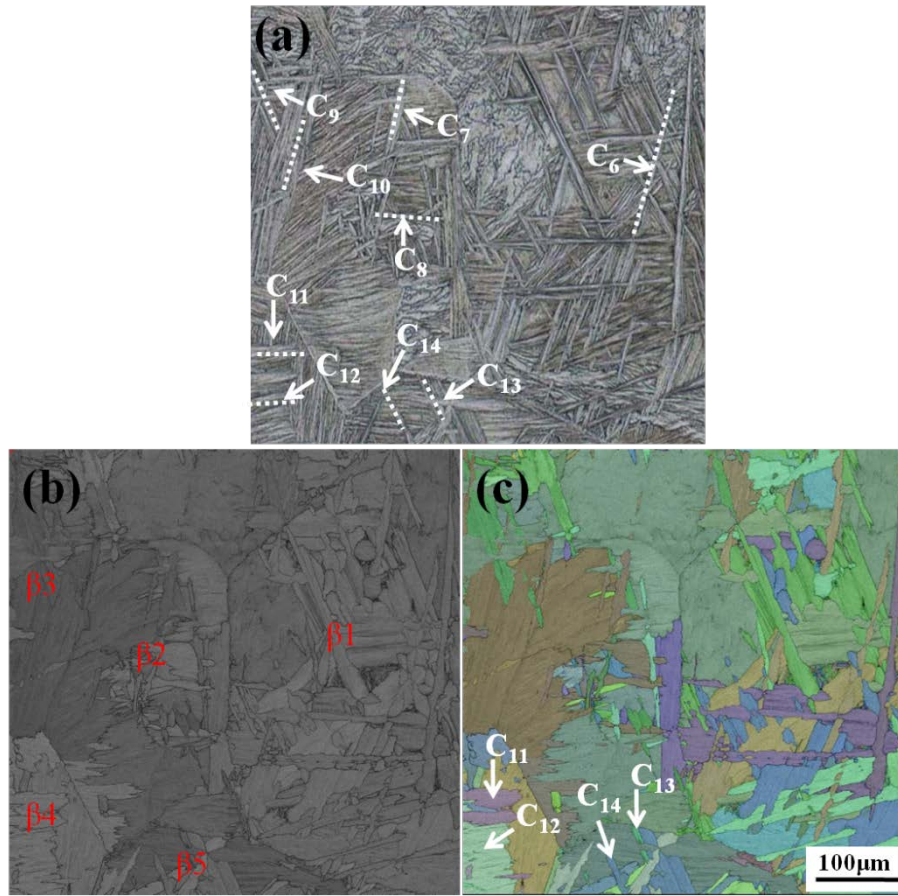


Fig. S1 Optical image and EBSD maps of scanning area

Table S3 The angle with (100)_s and crystallographic orientation of selected α laths in Fig. S1 of Part B

α variant	Measured Angle (degrees)	Crystallographic orientation	Calculated possible Angle (degrees)	Notes
C ₆	74	(154.9, 74.6, 137.7)	74.5	within the highlighted β_1 grain in text
C ₇	78	(146.9, 63.4, 18)	73	within a common β_2 grain
C ₈	175	(71.8, 34.1, 3.5)	177.2	
C ₉	113	(34.8, 114.3, 16.5)	110.7	within prior β_3 grain
C ₁₀	73.9	(147.0, 63.2, 12.0)	69.9	within prior β_4 grain
C ₁₁	0	(119.6, 38.9, 35.5)	177.1	
C ₁₂	2.8	(132.7, 128.2, 42.4)	178.8	within prior β_5 grain
C ₁₃	116	(26.5, 66, 51.5)	119.1	
C ₁₄	116	(38.1, 124.9, 32.0)	118	

Table S4 Possible β orientations of C_6 in Fig. S1 and possible geometric characters of that α laths with orientation of (154.9, 74.6, 137.7)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(114.1, 94.4, 297.0)	(-10.4, -0.4, 17.4)	(-0.4, 10.4)	92.3
$V_{2\beta}$	(110.1, 53.2, 253.8)	(-18.4, 8.3, 0.97)	(8.3, 18.4)	65.7
$V_{3\beta}$	(164.8, 30.19, 166.4)	(-8.0, 8.8, -16.4)	(8.8, 8.0)	42.5
$V_{4\beta}$	(113.6, 46.3, 244.1)	(-1.5, -5.3, 19.53)	(-5.3, 1.5)	164.4
$V_{5\beta}$	(111.2, 87.6, 289.5)	(15.2, -9.9, 9.01)	(-9.9, -15.2)	57.1
$V_{6\beta}$	(177.9, 33.1, 147.8)	(-16.7, 4.6, 10.5)	(4.6, 16.7)	74.6

Note: the misorientation between (177.9, 33.1, 147.8) and (179.7, 34.7, 54.3) is about 2.7°

Table S5 Possible β orientations of C_7 in Fig. S1 and possible geometric characters of that α laths with orientation of (146.9, 63.4, 18)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(161.5, 19.2, 161.4)	(-5.1, 12.4, -15.2)	(12.4, 5.1)	22.5
$V_{2\beta}$	(198.9, 55.5, 85.3)	(12.1, 1.8, -16.2)	(1.8, -12.1)	98.4
$V_{3\beta}$	(181.5, 93.5, 45.9)	(17.2, -10.6, -1)	(-10.6, -17.2)	58.3
$V_{4\beta}$	(197.7, 62.9, 78.5)	(-12.9, 13.3, -8.3)	(13.3, 12.9)	44.0
$V_{5\beta}$	(179.4, 23.0, 137.3)	(-17, 5.2, 9.8)	(5.2, 17.0)	73.0
$V_{6\beta}$	(175.9, 98.5, 37.8)	(4.1, 8.1, -18.1)	(8.1, -4.1)	153.2

Table S6 Possible β orientations of C_8 in Fig. S1 and possible geometric characters of that α laths with orientation of (71.8, 34.1, 3.5)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(192.0, 17.2, 43.2)	(17.1, 1.2, -10.8)	(1.2, -17.1)	94.0
$V_{2\beta}$	(138.1, 49.8, 46.5)	(7.8, -16.7, -8.5)	(-16.7, -7.8)	25.1
$V_{3\beta}$	(99.2, 74.0, 21.4)	(-9.3, -17.9, 2.2)	(-17.9, 9.3)	152.4
$V_{4\beta}$	(131.4, 55.0, 43.2)	(15.3, 10.9, -7.6)	(10.9, -15.3)	125.4
$V_{5\beta}$	(177.0, 22.7, 50)	(1.0, 20.0, 3.6)	(20.0, -1)	177.2
$V_{6\beta}$	(92.0, 76.3, 15.8)	(14.3, -9.0, -11.1)	(-9.0, -14.3)	57.8

Note: the misorientation between (179.4, 23.0, 137.3) and (177.0, 22.7, 50) is about 1.64°

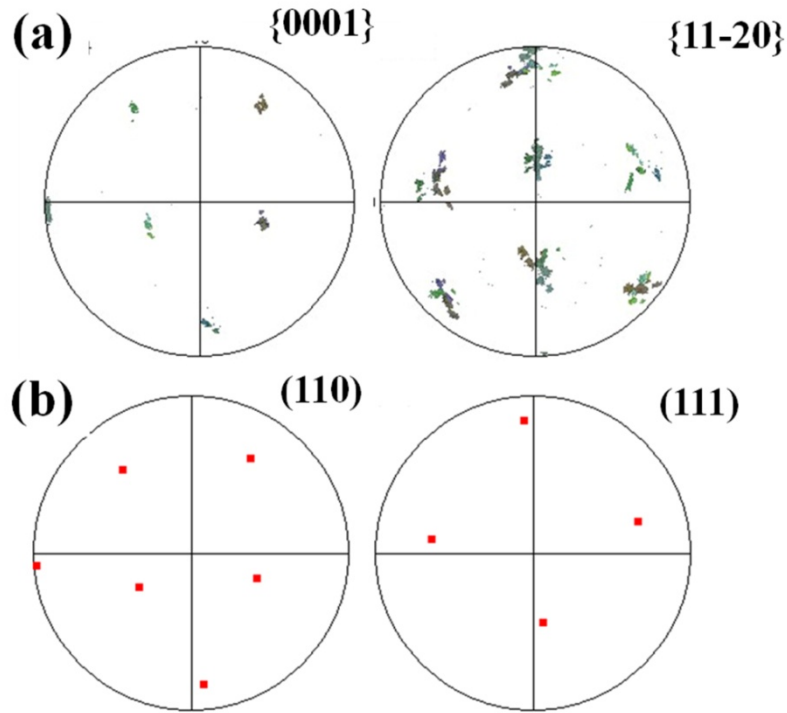


Fig. S2 (a) α texture measured within prior β_2 grain in Fig. S1 and (b) calculated β orientation with the Euler angles (179.4, 23.0, 137.3)

Table S7 Possible β orientations of C_9 in Fig. S1 and possible geometric characters of that α laths with orientation of (34.8, 114.3, 16.5)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(41.0, 69.7, 172.0)	(4.7, 11.9, -15.7)	(11.9, -4.7)	158.5
$V_{2\beta}$	(75.9, 93.0, 122.0)	(-12.1, 0.54, -16.3)	(0.54, 12.1)	87.5
$V_{3\beta}$	(84.9, 133.6, 81.4)	(-16.8, -11.4, -0.53)	(-11.4, 16.8)	124.1
$V_{4\beta}$	(79.4, 99.5, 114.9)	(12.3, 13.4, -8.9)	(13.4, -12.3)	137.4
$V_{5\beta}$	(48.6, 71.3, 162.0)	(16.7, 6.3, 9.6)	(6.3, -16.7)	110.7
$V_{6\beta}$	(82.3, 140.8, 72.1)	(-4.4, 7.1, -18.5)	(7.1, 4.4)	31.5

Table S8 Possible β orientations of C_{10} in Fig. S1 and possible geometric characters of that α laths with orientation of (147.0, 63.2, 12.0)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(172.9, 20.8, 146.4)	(-3.3, 11.9, -16.1)	(11.9, 3.3)	15.6
$V_{2\beta}$	(198.5, 59.5, 81.2)	(13.4, 0.45, -15.2)	(0.45, -13.4)	91.9
$V_{3\beta}$	(178.5, 96.2, 41.2)	(16.7, -11.4, 0.9)	(-11.4, -16.7)	55.7
$V_{4\beta}$	(196.7, 66.8, 74.5)	(-11.5, 13.4, -9.9)	(13.4, 11.5)	40.6
$V_{5\beta}$	(186.5, 26.0, 126.5)	(-17.4, 6.4, 8.2)	(6.4, 17.4)	70.0
$V_{6\beta}$	(172.5, 100.7, 32.9)	(5.9, 7.0, -18.1)	(7.0, -5.9)	140.0

Note: the misorientation between (48.6, 71.3, 162.0) and (186.5, 26.0, 126.5) is about 3.3°

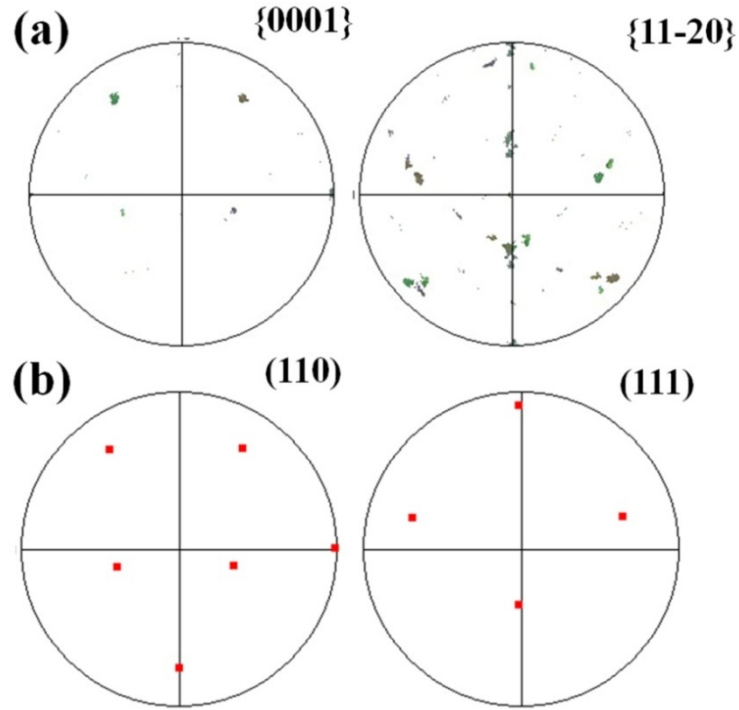


Fig. S3 (a) α texture measured within prior β_3 grain in Fig. S1 and (b) calculated β orientation with the Euler angles (48.6, 71.3, 162.0)

Table S9 Possible β orientations of C_{11} in Fig. S1 and possible geometric characters of that α laths with orientation of (119.6, 38.9, 35.5)

β variant	β grain orientation (ϕ_1, Φ, ϕ_2)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(353.4, 9.4, 314.2)	(0.95, 18.6, -8.1)	(18.6, -0.95)	177.1
$V_{2\beta}$	(200.6, 32.8, 61.3)	(15.2, 4.8, -12.6)	(4.8, -15.2)	107.6
$V_{3\beta}$	(166.4, 66.1, 40.4)	(14.2, -13.7, -4.5)	(-13.7, -14.2)	46.0
$V_{4\beta}$	(194.3, 39.2, 58.9)	(-7.6, 18.7, -2.13)	(18.7, 7.6)	22.1
$V_{5\beta}$	(301.1, 6.1, 1.3)	(-17.2, 4.5, 9.7)	(4.5, 17.2)	75.4
$V_{6\beta}$	(160.1, 70.7, 35.2)	(9.4, 13.4, -11.9)	(13.4, -9.4)	145.0

Table S10 Possible β orientations of C_{12} in Fig. S1 and possible geometric characters of that α laths with orientation of (132.7, 128.2, 42.4)

β variant	β grain orientation (ϕ_1, Φ, ϕ_2)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(120.2, 84.7, 193.8)	(-16.5, 8.0, -8.5)	(8.0, 16.5)	64.16
$V_{2\beta}$	(161.1, 91.5, 148.0)	(-8.6, -9.1, -15.9)	(-9.1, 8.6)	136.6
$V_{3\beta}$	(188.9, 123.7, 112.5)	(7.9, -17.1, -7.4)	(-17.1, -7.9)	24.8
$V_{4\beta}$	(167.2, 95.8, 140.9)	(-14.1, 14.4, -0.76)	(14.5, 14.1)	44.4
$V_{5\beta}$	(127.6, 83.4, 185.6)	(0.31, 15.2, 13.4)	(15.2, -0.31)	178.8
$V_{6\beta}$	(192.1, 130.8, 107.0)	(-14.5, -0.74, -14.2)	(-0.74, 14.5)	92.9

Note: the misorientation between (353.4, 9.4, 314.2) and (127.6, 83.4, 185.6) is about 1.77°

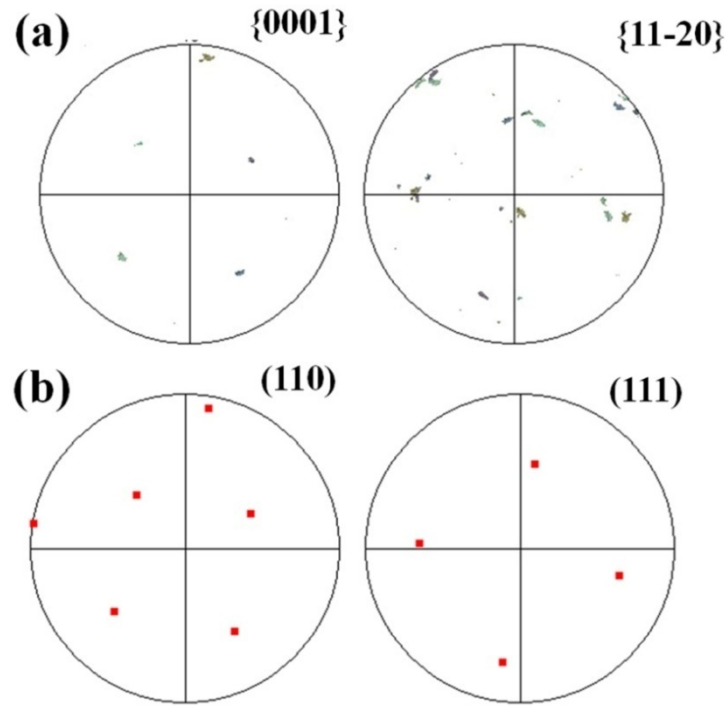


Fig. S4 (a) α texture measured within prior β_4 grain in Fig. S1 and (b) calculated β orientation with the Euler angles (353.4, 9.4, 314.2)

Table S11 Possible β orientations of C_{13} in Fig. S1 and possible geometric characters of that α laths with orientation of (26.5, 66, 51.5)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(347.2, 30.1, 234.8)	(18.1, 5.4, -7.3)	(5.4, -18.1)	106.5
$V_{2\beta}$	(70.2, 34.1, 116.7)	(5.7, -6.3, -18.4)	(-6.3, -5.7)	42.5
$V_{3\beta}$	(73.3, 75.4, 70.4)	(-12.3, -11.7, -11.1)	(-11.7, 12.3)	133.3
$V_{4\beta}$	(74.6, 41.0, 105.8)	(17.6, 9.8, 2.0)	(9.8, -17.6)	119.1
$V_{5\beta}$	(358.3, 24.7, 217.5)	(3.9, 10.4, 17.0)	(10.4, -3.9)	159.4
$V_{6\beta}$	(70.3, 82.3, 63.5)	(13.7, -0.58, -15.0)	(-0.58, -13.7)	87.6

Table S12 Possible β orientations of C_{14} in Fig. S1 and possible geometric characters of that α laths with orientation of (38.1, 124.9, 32.0)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(32.9, 80.1, 186.0)	(6.8, 15.4, -11.3)	(15.4, -6.8)	156.0
$V_{2\beta}$	(72.4, 93.0, 139.1)	(-10.5, 6.1, -16.2)	(6.1, 10.5)	59.8
$V_{3\beta}$	(95.1, 128.9, 103.4)	(-17.3, -9.3, -4.9)	(-9.3, 17.3)	118.0
$V_{4\beta}$	(77.7, 98.2, 132.2)	(13.9, 14.2, -3.78)	(14.2, -13.9)	135.7
$V_{5\beta}$	(40.4, 79.9, 177.2)	(16.1, 1.9, 12.13)	(1.9, -16.1)	96.7
$V_{6\beta}$	(96.9, 136.2, 97.1)	(-2.2, 12.3, -15.9)	(12.4, 2.2)	10.2

Note: the misorientation between (74.6, 41.0, 105.8) and (95.1, 128.9, 103.4) is about 0.33°

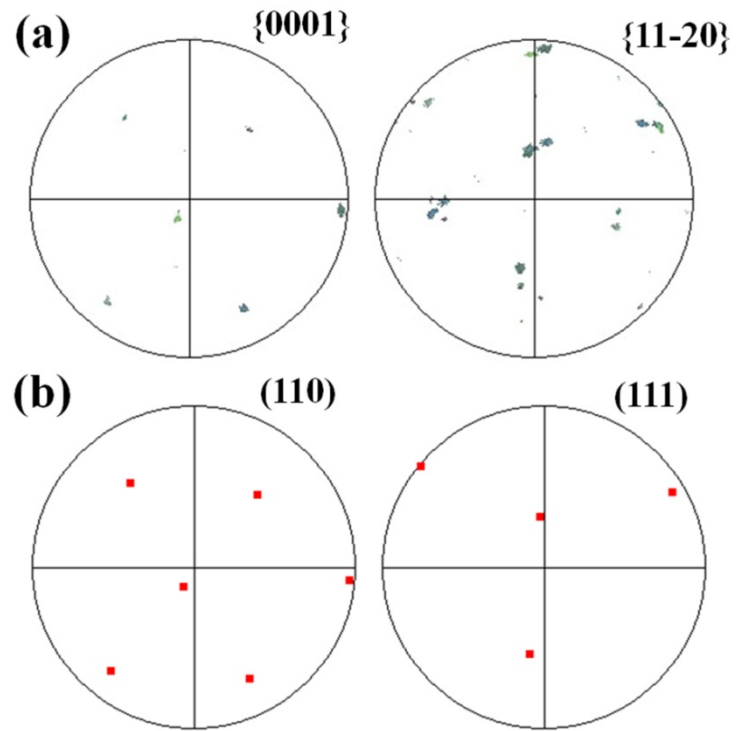


Fig. S5 (a) α texture measured within prior β_5 grain in Fig. S1 and (b) calculated β orientation with the Euler angles (74.6, 41.0, 105.8)

Part C:

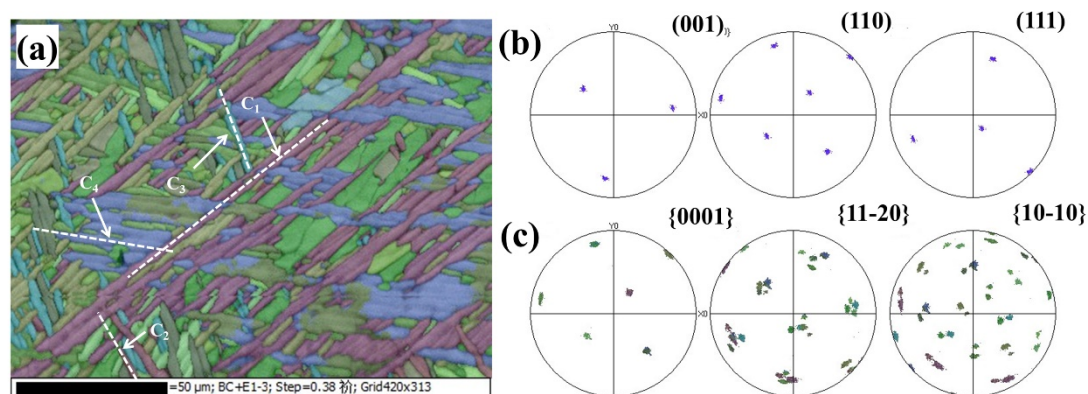


Fig. S6 (a) EBSD map and corresponding pole figure of measured (b) β and (c) α phase of Ti-6Al-4V alloy

Table S13 The angle with $(100)_s$ and crystallographic orientation of selected α laths in Fig. S6

α variant	Measured Angle (degrees)	Crystallographic orientation	Calculated possible Angle (degrees)	Notes
C1	39	(145, 27, 31.7)	42.8	The measured average Euler angles of residual β are (230, 39.4, 39.6)
C2	119	(144, 26, 19)	115.6	
C3	110	(15.4, 104.8, 55)	110.4	
C4	169	(43, 49.1, 59.5)	165.8	

Table S14 Possible β orientations of C_1 in Fig. S6 and possible geometric characters of that α laths with orientation of (145, 27, 31.7)

β variant	β grain orientation (ϕ_1, Φ, ϕ_2)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(340.7, 18.4, 350)	(-5.0, 18.6, -6.3)	(18.6, 5.0)	15.1
$V_{2\beta}$	(240.8, 34.6, 39.7)	(13.9, 11.8, -9.0)	(11.8, -13.9)	130.3
$V_{3\beta}$	(193.9, 59.7, 28.94)	(18.9, -6.8, -2.7)	(-6.8, -18.9)	70.1
$V_{4\beta}$	(231.3, 39.3, 39.85)	(-13.7, 14.8, -2.1)	(14.8, 13.7)	42.8
$V_{5\beta}$	(316.9, 18.11, 5.2)	(-18.9, -2.7, 6.7)	(-2.7, 18.9)	98.1
$V_{6\beta}$	(186.4, 63.0, 25.1)	(5.2, 17.5, -8.8)	(17.5, -5.2)	163.5

Note: the misorientation between (231.3, 39.3, 39.85) and the measured β orientation (230, 39.4, 39.6) is about 1.5°

Table S15 Possible β orientations of C_2 in Fig. S6 and possible geometric characters of that α laths with orientation of (144, 26, 19)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(311.6, 19.3, 7.6)	(-0.3, 18.9, -7.4)	(18.9, 0.3)	1.0
$V_{2\beta}$	(229.7, 40.3, 38.2)	(16.8, 8.1, -8.0)	(8.1, -16.8)	115.6
$V_{3\beta}$	(184.1, 63.0, 23.5)	(17.1, -10.8, -0.6)	(-10.8, -17.1)	57.8
$V_{4\beta}$	(221.0, 44.8, 37.2)	(-10.0, 17.2, -3.9)	(17.2, 10.0)	30.2
$V_{5\beta}$	(290.6, 21.1, 20.0)	(-19.6, 1.7, 5.0)	(1.7, 19.6)	85.0
$V_{6\beta}$	(176.4, 65.7, 19.4)	(9.6, 15.5, -8.9)	(15.5, -9.6)	148.2

Note: the misorientation between (229.7, 40.3, 38.2) and the measured β orientation (230, 39.4, 39.6) is about 1.9°

Table S16 Possible β orientations of C_3 in Fig. S6 and possible geometric characters of that α laths with orientation of (15.4, 104.8, 55)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(352.4, 65.8, 212.3)	(17.9, 6.8, -6.7)	(6.8, -17.9)	110.4
$V_{2\beta}$	(38.1, 65.6, 148.2)	(2.1, 5.9, -19.3)	(5.9, -2.1)	160.4
$V_{3\beta}$	(61.3, 100.2, 100.8)	(-15.8, -0.9, -12.6)	(-0.9, 15.8)	93.2
$V_{4\beta}$	(44.5, 70.1, 138.3)	(19.5, 4.5, 3.4)	(4.5, 19.5)	103
$V_{5\beta}$	(0.2, 62.4, 201.6)	(8.0, -2.8, 18.4)	(-2.8, -8.0)	70.7
$V_{6\beta}$	(62.3, 107.6, 93.5)	(11.5, 7.3, -15.0)	(7.3, -11.5)	122.4

Note: the misorientation between (352.4, 65.8, 212.3) and the measured β orientation (230, 39.4, 39.6) is about 0.4°

Table S17 Possible β orientations of C_4 in Fig. S6 and possible geometric characters of that α laths with orientation of (43, 49.1, 59.5)

β variant	β grain orientation ($\varphi_1, \Phi, \varphi_2$)	Geometric direction	Trace-direction	Angle with X-axis (degree)
$V_{1\beta}$	(333.9, 25.6, 273.2)	(16.7, 10.8, -4.1)	(10.8, -16.7)	122.9
$V_{2\beta}$	(112.0, 18.8, 93.6)	(12.5, -5.9, -14.8)	(-5.9, -12.5)	64.8
$V_{3\beta}$	(97.9, 59.5, 60.9)	(-4.2, -16.7, -10.8)	(-16.7, 4.2)	165.8
$V_{4\beta}$	(112.0, 26.3, 86.2)	(12.1, 15.8, 3.8)	(15.8, -12.1)	142.5
$V_{5\beta}$	(334.2, 18.1, 265.5)	(-4.7, 13.1, 14.8)	(13.1, 4.7)	19.7
$V_{6\beta}$	(93.5, 65.8, 55.5)	(16.8, 2.7, -11.0)	(2.7, -16.8)	99.1

Note: the misorientation between (97.9, 59.5, 60.9) and the measured β orientation (230, 39.4, 39.6) is about 1.8°