Supplementary Materials

Table S1. Anthropometric parameters, blood pressure values and markers of glucose homeostasis, residual beta-cell function and beta-cell autoimmunity during the follow-up period.

Parameter	T1D onset	2 months after the T1D onset	14 months after the T1D onset	19 months after the T1D onset (3 months after the second COVID-19 vaccine dose)
Body weight (Kg)	69	71.5	67.5	68.5
BMI (Kg/m^2)	22.5	23.3	21.8	22.1
Blood pressure (mmHg)	130/90	120/60	110/70	120/70
HbA1c (%; mmol/mol)	13.2% (121 mmol/mol)	5.3% (34 mmol/mol)	5.2% (33 mmol/mol)	5.7% (39 mmol/mol)
Total daily insulin dose (TDI)	0.7 IU/ body weight/24 hours (after DKA resolution; basal-bolus insulin therapy)	0.09 IU/Kg body weight/24 hours (insulin degludec 7 IU/day)	0.10 IU/Kg body weight/24 hours (insulin degludec 7 IU/day)	0.10 IU/Kg body weight/24 hours (insulin degludec 7 IU/day)
IDAA1c	Not applicable	5.6	5.6	6.1
Fasting capillary blood ketones (mmol/L)	>3.0	0.3	0.2	0.3
Fasting plasma C-peptide (ng/mL) (reference range: 0.78–5.19)	0.22	0.74	0.87	0.28
30-min (MMTT) plasma C-peptide (ng/mL)	n/a	1.89	1.52	0.90
60-min (MMTT) plasma C-peptide (ng/mL)	n/a	2.53	1.62	1.25
90-min (MMTT) plasma C-peptide (ng/mL)	n/a	2.95	1.69	1.52
120-min (MMTT) plasma C-peptide (ng/mL)	n/a	2.53	1.78	2.00
Fasting plasma glucose (mg/dL)	501	80	72	72
30-min (MMTT) plasma glucose (mg/dL)	n/a	203	146	170
60-min (MMTT) plasma glucose (mg/dL)	n/a	151	183	235
90-min (MMTT) plasma glucose (mg/dL)	n/a	110	165	261
120-min (MMTT) plasma glucose (mg/dL)	n/a	81	182	250

Fasting C-peptide index	0.04	0.92	1.20	0.38
30-min (MMTT) C-peptide index	n/a	0.93	1.04	0.52
60-min (MMTT) C-peptide index	n/a	1.67	0.88	0.53
90-min (MMTT) C-peptide index	n/a	2.68	1.02	0.58
120-min (MMTT) C-peptide index	n/a	3.12	0.97	0.80
GADA (reference range: 0.00–5.00 AU/mL)	24.6	n/a	26.0	26.3
IAA (reference range: 0.00–9.00 U/mL)	5.1	n/a	1.8	0.4
IA2A (cut-off for positivity: ≥7.4 U/mL)	>350.0	n/a	201.10	n/a
ZnT8A (cut-off for positivity: ≥14.9 U/mL)	18.9	n/a	9.60	n/a
ICA (cut-off for negativity - indirect immunofluorescence: <1:5)	<1:5	n/a	<1:5	<1:5
Serum 25-hydroxyvitamin D levels (ng/mL)	n/a	28.0	57	45

IDAA1c (Insulin-Dose Adjusted HbA1c) was calculated through the following formula: HbA1c (%) + 4 x [insulin dose (units per kilogram per 24 h)]. A calculated IDAA1C value of ≤9 was used to define the partial remission [ref. 21]. 120-minute-mixed meal tolerance tests (MMTTs) were performed via oral administration of Ensure Plus®, Abbott (360 mL) for the assessment of residual beta-cell function. C-peptide index (also referred to as C-peptide to glucose ratio) was assessed in fasting and (MMTT)-postprandial states, and was calculated through the following formula: C-peptide (ng/mL)/glucose (mg/dL) (×100) [ref. 23]. **Abbreviations**: BMI, body mass index; GADA, glutamic acid decarboxylase autoantibodies; HbA1c, glycated hemoglobin; IAA, insulin autoantibodies; IA2A, islet tyrosine phosphatase 2 autoantibodies; ICA, islet-cell antibodies; IDAA1c, Insulin-Dose Adjusted HbA1c; MMTT, mixed meal tolerance test; n/a, not available; T1D, type 1 diabetes; ZnT8A, zinc transporter 8 autoantibodies.

Table S2. Laboratory tests (other than markers of glucose homeostasis, residual beta-cell function and beta-cell autoimmunity) performed at 2 months, 14 months and 19 months from the clinical onset of type 1 diabetes (T1D).

Laboratory parameter *	2 months after the T1D onset	14 months after the T1D onset	19 months after the T1D onset **
WBC count (4.00–10.00×10³/μL)	5.34 × 10³/μL	5.71×10³/μL	6.23×10³/μL
Neutrophils (1.8–7.0×10³/μL; 40.0–75.0%)	2.80×10³/μL (52.2%)	3.01×10³/μL (52.8%)	3.12×10³/μL (50.0%)

Lymphocytes (1.0–4.8×10³/μL; 19.0–48.0%)	2.10×10³/μL (40.0%)	2.19×10³/μL (38.40%)	2.59×10³/μL (41.50%)
Monocytes (0.1–0.8×10³/μL; <12.0%)	0.3×10³/μL (5.0%)	0.36×10³/μL (6.3%)	0.38×10³/μL (6.2%)
Eosinophils (0.0–0.5×10³/μL; <6.0%)	0.1×10³/μL (1.7%)	0.12×10³/μL (2.1%)	0.08×10³/μL (1.3%)
Basophils (0.0–0.2×10³/μL; <2.0%)	0.1×10³/μL (1.0%)	0.03×10³/μL (0.5%)	0.07×10³/μL (1.1%)
RBC count (4.40–5.90×10⁶/μL)	5.21×10⁶/μL	5.07×10⁶/μL	5.11×10⁶/μL
Hb (14.0–18.0 g/dL)	15.7 g/dL	15.1 g/dL	15.3 g/dL
Ht (41–51%)	46%	43.2%	44.5%
MCV (82.0–98.0 fl)	88.9 fl	85.2 fl	87.0 fl
MCH (27.0–34.0 pg)	30.1 pg	29.7 pg	29.9 pg
MCHC (32.0–36.0 g/dL)	33.9 g/dL	34.9 g/dL	34.3 g/dL
Platelet count (150–450×10³/μL)	153x10³/μL	160x10³/μL	163x10³/μL
BUN (19–44 mg/dL)	35 mg/dL	38 mg/dL	39 mg/dL
Creatinine (0.73–1.18 mg/dL)	1.05 mg/dL	0.84 mg/dL	1.13 mg/dL
eGFR (CKD-EPI)	100.3 mL/min/1.73m²	122.6 mL/min/1.73m²	90.5 mL/min/1.73m²
Uric acid (3.57–7.20 mg/dL)	5.5 mg/dL	5.0 mg/dL	5.0 mg/dL
Total serum protein level (60–80 g/L)	65 g/L	63 g/L	68 g/L
Total bilirubin (<1.20 mg/dL)	0.63 mg/dL	0.54 mg/dL	1.15 mg/dL
Direct bilirubin (<0.5 mg/dL)	0.36 mg/dL	0.25 mg/dL	0.40 mg/dL
AST (5–34 U/L)	19 U/L	22 U/L	23 U/L
ALT (0–55 U/L)	13 U/L	11 U/L	14 U/L
GGT (12–64 U/L)	12 U/L	12 U/L	13 U/L
ALP			48 U/L

(40–150 U/L)	58 U/L	62 U/L	
Sodium (135–145 mmol/L)	142 mmol/L	141 mmol/L	139 mmol/L
Potassium (3.5–5.1 mmol/L)	3.63 mmol/L	3.8 mmol/L	3.7 mmol/L
Calcium (8.4–10.2 mg/dL)	8.9 mg/dL	8.8 mg/dL	9.4 mg/dL
Phosphorus (2.3–4.7 mg/dL)	3.3 mg/dL	3.3 mg/dL	4.0 mg/dL
Magnesium (1.6–2.6 mg/dL)	2.2 mg/dL	2.3 mg/dL	2.2 mg/dL
Serum iron (65–175 µg/dL)	70 µg/dL	68 µg/dL	155 µg/dL
Transferrin (174–364 mg/dL)	211 mg/dL	219 mg/dL	213 mg/dL
Ferritin (21.8–275 ng/mL)	132 ng/mL	100 ng/mL	107 ng/mL
Albumin (35–50 g/L)	42 g/L	42.8 g/L	46.6 g/L
Total cholesterol (<200 mg/dL)	146 mg/dL	132 mg/dL	160 mg/dL
HDL-cholesterol (>40 mg/dL)	42 mg/dL	49 mg/dL	54 mg/dL
LDL-cholesterol (<130 mg/dL)	95 mg/dL	77 mg/dL	102 mg/dL
Triglycerides (<150 mg/dL)	46 mg/dL	38 mg/dL	26 mg/dL
TSH (0.35–4.94 µIU/mL)	1.07 µIU/mL	1.41 µIU/mL	1.26 µIU/mL
FT3 (1.72–3.54 pg/mL)	2.74 pg/mL	2.46 pg/mL	2.83 pg/mL
FT4 (0.7–1.48 ng/dL)	0.90 ng/dL	0.88 ng/dL	1.04 ng/dL
Anti-thyroid peroxidase (TPO) antibodies (0.0–5.6 IU/mL)	0.0 IU/mL	n/a	0.2 IU/mL
Antithyroglobulin antibodies (0.0–4.1 IU/mL)	2.0 IU/mL	n/a	0.9 IU/mL
Tissue transglutaminase IgA antibodies (<10 AU/mL)	2.40 AU/mL	2.30 AU/mL	2.50 AU/mL
Total IgA (0.70–3.78 g/L)	n/a	1.15 g/L	1.10 g/L
Total testosterone (2.40–8.70 ng/mL)	4.02 ng/mL	4.38 ng/mL	3.37 ng/mL
Serum cortisol - 08:00 AM	n/a	13.3 µg/dL	n/a

(3.7–19.4 µg/dL)			
ACTH - 08:00 AM (4.7–48.8 pg/mL)	n/a	15 pg/mL	n/a
Folate (3.1–20.5 ng/mL)	5.5 ng/mL	4.8 ng/mL	9.2 ng/mL
Vitamin B12 (187–883 pg/mL)	442 pg/mL	389 pg/mL	509 pg/mL
25(OH)D (≥30 ng/mL)	28 ng/mL	57 ng/mL	45 ng/mL
PTH (15.0–83.1 pg/mL)	n/a	40.6 pg/mL	48.6 pg/mL
Urinalysis	Absence of glucose, proteins, ketones and nitrites in urine; Albumin-to-creatinine ratio (ACR) 15 mg/g	Absence of glucose, proteins, ketones and nitrites in urine; Albumin-to-creatinine ratio (ACR) 15 mg/g	Absence of glucose, proteins, ketones and nitrites in urine; Albumin-to-creatinine ratio (ACR) 15 mg/g

* Reference ranges at our Institution are shown in brackets. ** 3 months after the second COVID-19 vaccine dose injection. **Abbreviations**: 25(OH)D, 25-hydroxyvitamin D; ACTH, adrenocorticotropic hormone; ALP, alkaline phosphatase; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BUN, blood urea nitrogen; eGFR (CKD-EPI), estimated glomerular filtration rate calculated through the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) equation; FT3, free triiodothyronine; FT4, free thyroxine; GGT, gamma-glutamyl transferase; Hb, hemoglobin; HDL-cholesterol, high-density lipoprotein cholesterol; Ht, hematocrit; IgA, Immunoglobulin A; LDL-cholesterol, low-density lipoprotein cholesterol; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; MCV, mean corpuscular volume; PTH, parathyroid hormone; RBC, red blood cell count; TSH, thyroid-stimulating hormone; WBC, white blood cell count.

Table S3. Summary of the main continuous glucose monitoring (CGM) metrics during different periods before and after COVID-19 vaccination.

CGM metrics	23 Nov 2021 - 13 Dec 2021 (21 days before the first vaccine dose)	14 Dec 2021 - 3 Jan 2022 (21 days after the first vaccine dose)	4 Jan 2022 - 24 Jan 2022 (21 days after the second vaccine dose)	25 Jan 2022 - 14 Feb 2022 (21 days following the first 3 weeks after the second vaccine dose)
TIR 70–180 mg/dL	90%	87%	74%	88%
TAR 181–250 mg/dL	8%	11%	19%	9%
TAR>250 mg/dL	2%	2%	7%	2%
TBR 54–69 mg/dL	0%	0%	0%	1%
TBR<54 mg/dL	0%	0%	0%	0%

GMI	6.4% (47 mmol/mol)	6.6% (49 mmol/mol)	7.0% (53 mmol/mol)	6.3% (46 mmol/mol)
Glycemic variability (%CV)	29.9%	28.8%	32.8%	33.0%
Percentage of time CGM was active	91%	92%	83%	79%

Abbreviations: CV, coefficient of variation; GMI, Glucose Management Indicator (also referred to as estimated A1C or eA1C); TAR, time above range; TBR, time below range; TIR, time in range.