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APPROVED BY Frontiers Editorial Office, Frontiers Media SA, Switzerland

\*CORRESPONDENCE Frontiers Production Office

SPECIALTY SECTION

This article was submitted to Immunological Tolerance and Regulation, a section of the journal Frontiers in Immunology

RECEIVED 16 December 2022 ACCEPTED 16 December 2022 PUBLISHED 24 January 2023

#### CITATION

Frontiers Production Office (2023) Erratum: Type 1 regulatory T cellmediated tolerance in health and disease.

Front. Immunol. 13:1125497. doi: 10.3389/fimmu.2022.1125497

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# Erratum: Type 1 regulatory T cell-mediated tolerance in health and disease

## Frontiers Production Office\*

Frontiers Media SA, Lausanne, Switzerland

#### KEYWORDS

type 1 regulatory T (Tr1) cells, immunological tolerance, autoimmunity, inflammatory bowel disease, infectious disease

### An Erratum on

#### Type 1 regulatory T cell-mediated tolerance in health and disease

By Freeborn RA, Strubbe S and Roncarolo MG (2022) *Front. Immunol.* 13:1032575. doi: 10.3389/fimmu.2022.1032575

Due to a production error, there was a mistake in Table 1 as published. Some of the citations in Table 1 did not link to the correct references in the reference list. The corrected Table 1 appears below. The publisher apologizes for this mistake.

The original version of this article has been updated.

Disease	Cell identity	Model	Major finding	Reference
TID	FOXP3 <sup>-</sup> IL-10-producing CD4 <sup>+</sup> T cells	NOD BDC2.5 TCR-transgenic and NOD/SCID mice	Intestinal FOXP3 <sup>-</sup> IL-10-producing CD4 <sup>+</sup> T cells can protect from T1D	76
	IL-10-producing CD4 <sup>+</sup> T cells	NOD and NOD/SCID mice	Combination of rapamycin and IL-10 reduces incidence of diabetes	77
	GAD65-specific IL-10- producing CD4 <sup>+</sup> T cells	GAD65-immunized NOD and NOD/ SCID mice	Protection from T1D in adoptive transfer experiments	78
	Antigen-specific IL-10- producing CD4 <sup>+</sup> T cells	Immunized NOD and NOD/SCID mice	Antigen-containing PLG nanoparticles protect from T1D	79
	CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	Immunized NOD and NOD/SCID mice	IGRP- and 2.5mi/IA <sup>g7</sup> nanoparticles expand pre-existing Tr1 cells and protect from T1D	80
	Islet-specific IL-10-producing CD4 <sup>+</sup> T cells	Patient PBMCs	Higher frequency in healthy donors	81
	Islet-specific IL-10-producing CD4 <sup>+</sup> T cells	Patient PBMCs	Higher frequency in first degree relatives	82
	Insulin-specific IL-10- producing CD4 <sup>+</sup> T cells	Patient PBMCs	Higher in patients that have better future glucose control	83
	IGFR-specific IL-10-producing CD4 <sup>+</sup> T cells	Patient PBMCs	Higher frequency in juvenile T1D compared to adult T1D	84
	IL-10-producing CD4 <sup>+</sup> T cells	Patient PBMCs	Increase in IL-10-producing CD4 <sup>+</sup> T cells upon anti-CD3 treatment	85
	Proinsulin-specific IL-10- producing CD4 <sup>+</sup> T cells	Proinsulin-immunized patient PBMCs	Increase in IL-10 production and decrease in insulin dependency	86
	IGRP-specific CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	IGRP-immunized NSG mice reconstituted with DR4 patient PBMCs	Induction of IGRP-specific CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	80
MS	OVA-specific IL-10-producing CD4 <sup>+</sup> T cells	OVA-immunized MSCH-induced EAE mice	OVA-specific protection from EAE development	87
	IL-10-producing CD4 <sup>+</sup> T cells	MOG-induced EAE mice	IL27-pulsed DCs upregulate IL-10 production by $\rm CD4^+~T$ cells for protection from EAE development	88
	CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	MOG-induced EAE mice	Protection from EAE development independently of IL-10	89
	IL-10-producing CD4 <sup>+</sup> T cells	MOG-induced EAE mice	Melatonin induces IL-10-producing $\mathrm{CD4}^+\mathrm{T}$ cells to protect from EAE development	65
	CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	PLP-induced EAE mice	PLP- and MOG-containing pMHCII nanoparticles protect from EAE development	80
	IL-10-producing CD4 <sup>+</sup> T cells	PLP- and MOG-induced EAE	MOG- and AhR-containing NLPs protects from EAE development	90
	CD46-induced IL-10-producing $\text{CD4}^+$ T cells	Patient PBMCs	Lower frequency in MS patients	91
	CD46-induced IL-10-producing $CD4^+$ T cells	Patient PBMCs	Altered glycosylation of CD46 in MS patients	57
SLE	CD46-induced IL-10-producing $CD4^+$ T cells	Patient PBMCs	Lower frequency in SLE patients	24
	IL-10-producing IL7R <sup>-</sup> CD4 <sup>+</sup> T cells	Patient PBMCs	Decreased ability in limiting autoantibody production by B cells	16
	IL-10-producing CXCR5 <sup>-</sup> CXCR3 <sup>+</sup> PD-1 <sup>high</sup> CD4 <sup>+</sup> T cells	Patient PBMCs	$\rm CXCR5^{-}CXCR3^{+}PD\text{-}1^{high}$ CD4 $^{+}$ T cell-derived IL-10 can stimulate autoantibody production	92
Arthritis	Collagen type II-specific IL-10- producing CD4 <sup>+</sup> T cells	Collagen type II-immunized DBA/1 mice	Protection from arthritis development	93
Psoriasis	CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	Patient PBMCs and skin biopsies	Presence of Tr1 cells inversely correlated with disease severity	94
Celiac disease	Gliadin-specific IL-10- producing CD4 <sup>+</sup> T cells	Patient intestinal T cells	Gliadin-specific suppression of effector T cells	44
	Gliadin-specific IL-10- producing CD4 <sup>+</sup> T cells	Patient PBMCs and intestinal T cells	Multi-epitope gliadin extract induces tolerance in celiac disease patients	95
IBD	OVA-specific IL-10-producing CD4 <sup>+</sup> T cells	CD4 <sup>+</sup> CD45RB <sup>high</sup> adoptive transfer mice	Prevention of colitis in recipient mice	4
	IL10-deficient CD4 <sup>+</sup> CD45RB <sup>low</sup> T cells	CD4 <sup>+</sup> CD45RB <sup>high</sup> adoptive transfer mice	Protection from colitis is dependent on IL-10	96

TABLE 1 Overview of the role of Tr1 and IL-10-producing CD4<sup>+</sup> T cells in AIDs and IBD.

(Continued)

#### TABLE 1 Continued

Disease	Cell identity	Model	Major finding	Reference
	IL-10-producing CD4 <sup>+</sup> T cells	CD4 <sup>+</sup> CD45RB <sup>high</sup> adoptive transfer mice	Prevention of Th17-mediated colitis	97
	IL-10-producing CD4 <sup>+</sup> T cells	DSS-induced colitis mouse model	GSK-J4-mediated induction of tolerogenic DCs to promote IL-10 production by $\rm CD4^+~T$ cells	98
	IL-10-producing CD44 <sup>+</sup> CD4 <sup>+</sup> T cells	TNBS-induced colitis mouse model	MSCs induce expansion of IL-10-producing CD44 <sup>+</sup> CD4 <sup>+</sup> T cells	99
	Intestinal IL7R <sup>-</sup> CCR5 <sup>+</sup> PD-1 <sup>+</sup> Tr1 cells	Patient intestinal T cells	Decreased IL-10 production	30
	IL-10-producing OVA-Treg	Patient PBMCs	Amelioration of disease in treated patients	100
	CD49b <sup>+</sup> LAG-3 <sup>+</sup> Tr1 cells	Patient PBMCs and colon biopsies	Decrease of myeloid-derived inflammatory cytokines and production of IL-22 and mucin to promote barrier integrity	69

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