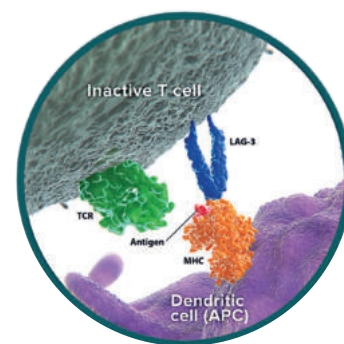


LAG-3 – FGL1 – MHC – TCR Pathway

Lymphocyte-activation Gene 3 (LAG-3; CD223) is an immune checkpoint receptor expressed on the surface of both activated cytotoxic T cells and regulatory T cells (Tregs). LAG-3 expression limits both the expansion of activated T cells and the size of the T cell memory pool. LAG-3 selectively inhibits the activation of T cells by binding to stable but not unstable major histocompatibility complex (MHC) class II. But MHC class II interaction alone is insufficient for optimal LAG-3 function. Instead, LAG-3's spatial proximity to T cell receptor (TCR) but not CD4 co-receptor, facilitated by cognate/stable peptide-MHC class II, is crucial for CD4⁺ T cell suppression. LAG-3 also binds to Fibrinogen-Like Protein 1 (FGL1). FGL1 binding to LAG-3 inhibits T cell response. FGL1 is upregulated in human cancers, and high plasma FGL1 levels are associated with poor clinical outcomes in patients treated with anti-PD1 therapy.

LAG-3 synergizes with PD-1 in suppressing autoimmunity, tumor immunity, and infection immunity, and can also trigger the immunosuppressive activity of Tregs. Increased LAG-3 expression has been associated with poorer prognosis in multiple tumor types. Dual inhibition of LAG-3 and other checkpoint pathways may synergistically increase T cell antitumor activity.



SELECTED REFERENCES: Immune Checkpoint LAG3 and Its Ligand FGL1 in Cancer: A.P. Shi, et al.; Front. Immunol. 12, 785091 (2022) • LAG-3 as the third checkpoint inhibitor: V. Aggarwal, et al.; Nat. Immunol. 24, 1415 (2023) • The immune checkpoint receptor LAG3: Structure, function, and target for cancer immunotherapy: R.A. Mariuzza, et al.; J. Biol. Chem. 300, 107241 (2024) • Exploring new frontiers in LAG-3 biology and therapeutics: J. Wang, et al.; Trends Pharmacol. Sci. 46, 638 (2025) • Proximity between LAG-3 and the T cell receptor guides suppression of T cell activation and autoimmunity: J. Du, et al.; Cell 188, 4025 (2025)

Highly Sensitive FGL1 ELISA Assays

FGL1 (human) ELISA Kit

AG-45B-0022

96 wells

Specificity: Detects human FGL1 in biological fluids.

Sensitivity: 1.8 pg/ml

Range: 7.8 to 500 pg/ml

Sample: Cell Culture Supernatant, Plasma, Serum

FGL1 (human) Matched Pair Detection Set

AG-45B-0016

96 wells

Specificity: Detects human FGL1 in biological fluids.

Sensitivity: <5 pg/ml

Range: 7.8 to 500 pg/ml

Sample: Cell Culture Supernatant, Plasma, Serum

FGL1 and LAG-3 Biologically Active Proteins and Antibodies

PROTEINS	PID	SIZE	SOURCE	ENDOTOXIN	SPECIES
Fc (human):FGL1 (mouse) (rec.)	AG-40B-0185	10 µg 100 µg	HEK 293 cells	<0.01EU/µg	Ms
FGL1 (human) (rec.) (His)	AG-40B-0186	10 µg 3 x 10 µg	HEK 293 cells	<0.01EU/µg	Hu
Fc (human):FGL1 (human) (rec.)	AG-40B-0184	10 µg 100 µg	HEK 293 cells	<0.01EU/µg	Hu
LAG-3 (mouse):Fc (mouse) (rec.)	AG-40B-0039	50 µg	CHO cells	<0.001EU/µg	Hu, Ms
LAG-3 (human):Fc (human) (rec.)	AG-40B-0031	50 µg	CHO cells	<0.001EU/µg	Hu, Mk, Ms
ANTIBODIES	PID	SIZE	ISOTYPE	APPLICATION	SPECIES
anti-LAG-3, mAb (blocking) (11E3) (PF)	AG-20B-0011PF	100 µg	Mouse IgG1	FUNC, ICC, IHC, IP, WB	Hu, Mk
anti-LAG-3 (human), mAb (blocking) (17B4) (PF)	AG-20B-0012PF	100 µg	Mouse IgG1	FACS, FUNC, ICC, IHC, IP, WB	Hu

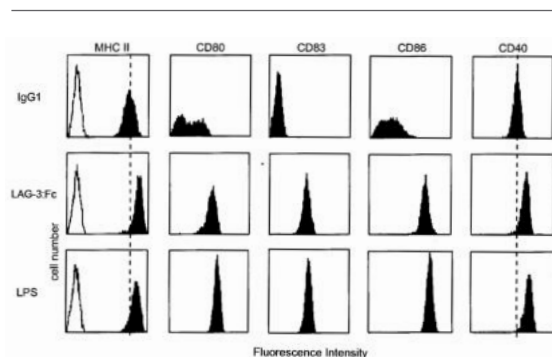


FIGURE: LAG 3 (human):Fc (human) (rec.)-induced dendritic cells (DC) maturation.

METHOD: Immature DCs derived from human monocytes, resuspended at 1×10^6 cells/ml in complete culture medium, are incubated with LAG-3 (human):Fc (human) (rec.) (Prod. No. AG-40B-0031) (10 μ g/ml), LPS (positive control, 5 μ g/ml) or human IgG1 (isotype-matched negative control, 10 μ g/ml) for 48 hours. DC maturation induced by LAG-3 (human):Fc (human) (rec.) binding to MHC class II or LPS is assessed by the increased expression of MHC Class II, CD80, CD83, CD86 and CD40.

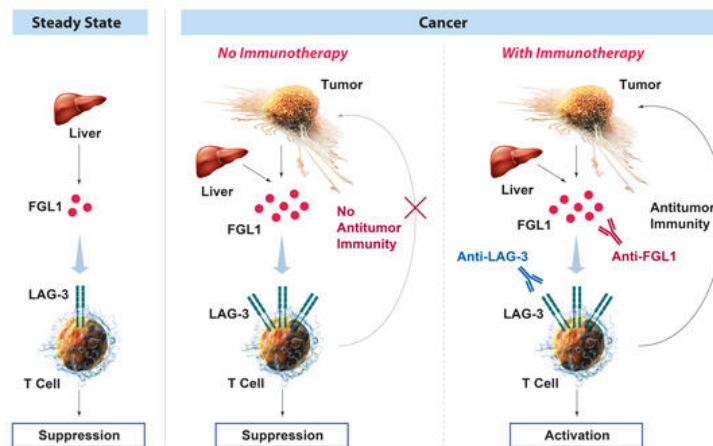


FIGURE: FGL1 is a major ligand of the inhibitory immune checkpoint receptor LAG-3. Tumors overexpress FGL1 to block antitumor immunity. Blockade of FGL1 and/or LAG-3 by anti-FGL1 and/or anti-LAG-3 antibodies, respectively can potentiate antitumor T cell responses.

Related Antibodies from Ancell & RevMab



ANTIBODIES	PID	SIZE	ISOTYPE	APPLICATION	SPECIES
anti-MHC Class I (human), mAb (3F10)	ANC-121-020	100 μ g	Mouse IgG2a	ELISA, FACS, IHC	Hu
anti-MHC Class II (human), mAb (TDR31.1)	ANC-131-020	100 μ g	Mouse IgG1	FACS, IHC, WB	Hu
anti-TCR Cβ1 (human), mAb (Jovi-1)	ANC-101-020	100 μ g	Mouse IgG2a	FACS	Hu
anti-TCR Vβ3 (human), mAb (Jovi-3)	ANC-102-020	100 μ g	Mouse IgG2a λ	FACS	Hu
anti-CD3 (human), mAb (UCHT1)	ANC-144-020	100 μ g	Mouse IgG1	FACS, WB, FUNC	Hu
anti-CD3 (mouse), mAb (145-2C11)	ANC-703-020	100 μ g	Hamster IgG	FACS, IP, WB	Ms
anti-CD4 (human), Rabbit Monoclonal (RM345)	REV-31-1231-00	100 μ g	Rabbit IgG	IHC, WB	Hu
anti-CD4 (human), mAb (QS4120)	ANC-147-020	100 μ g	Mouse IgG1 κ	FACS, FUNC	Hu
anti-CD4 (human), mAb (M-T441)	ANC-148-020	100 μ g	Mouse IgG2b	FACS	Hu, Mk
anti-CD4 (mouse), mAb (GK1.5) (PF)	ANC-704-820	100 μ g	Rat IgG2b κ	FACS, FUNC, IHC, IP	Ms
anti-CD8 (human), mAb (UCHT4)	ANC-153-020	100 μ g	Mouse IgG2a	FACS, ICC, WB	Hu
anti-CD8 (human), mAb (14)	ANC-154-020	100 μ g	Mouse IgG1 κ	FACS	Hu
anti-CD8-α (mouse), mAb (53-6)	ANC-260-020	100 μ g	Rat IgG2a κ	FACS	Ms

IHC GRADE

anti-FGL1 (human), Rabbit Monoclonal (RM502)

REV-31-1394-00

100 μ l

FIGURE: IHC staining of FFPE human HCC tissue section using Clone RM502 at a 1:100 dilution.

