

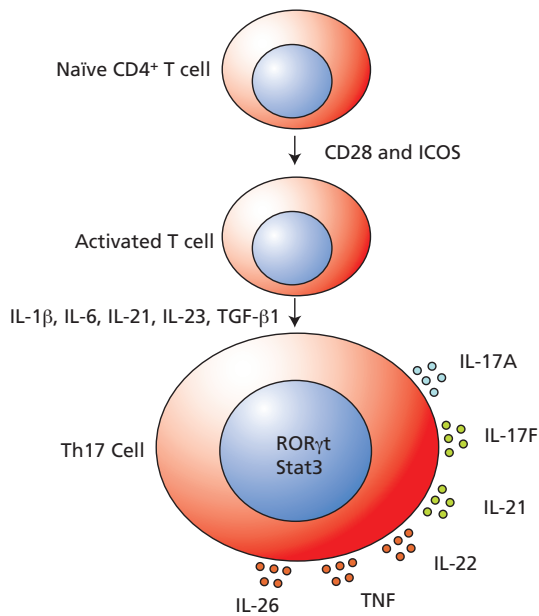
BD Human IL-17A Reagents

A comprehensive portfolio for inflammation and autoimmunity research

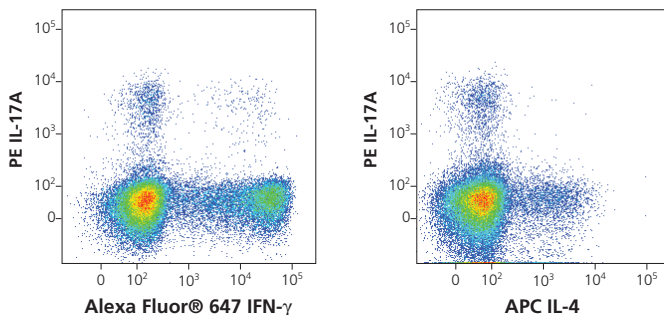
Features

Available in a wide selection of fluorochrome-conjugated antibodies, including Alexa Fluor® 488, Alexa Fluor® 647, and PE

Also offered in BD Cytometric Bead Array (CBA) format for simultaneous quantitation of multiple analytes from a single sample



Th17 differentiation pathway. Induction of the Th17 lineage from a naïve T cell requires engagement of CD28 and ICOS in the presence of the appropriate cytokines. These cytokines promote expression of the signature Th17 cytokines via the ROR γ T and Stat3 transcription factors.



Flow cytometric analysis of PE anti-human IL-17A on stimulated PBMCs. Human PBMCs were stimulated with PMA/Ionomycin in the presence of BD GolgiStop™ protein transport inhibitor (Cat. No. 554724) for 5 hours. Cells were then fixed and permeabilized using BD Cytofix/Cytoperm™ reagents (Cat. No. 554714) followed by staining with PE anti-human IL-17A (Cat. No. 560486), and Alexa Fluor® 647 anti-human IFN- γ (Cat. No. 557729; left panel) or APC anti-human IL-4 (Cat. No. 554486; right panel). The dot plots were derived from a CD4⁺ lymphocyte gate. Flow cytometry was performed using a BD FACSCalibur™ system.

BD Biosciences selection of IL-17A reagents provides essential tools for research in Th17 biology and builds on our experience in measuring Th1/Th2 responses and our leadership in T cell research.

BD Pharmingen™ IL-17A reagents are available as purified antibodies in ready-to-use fluorochrome-conjugated formats. Also, they are available as BD™ Cytometric Bead Array (CBA) assays to support research in the role of Th17 cells in inflammation and the autoimmune response. The BD CBA format enables simultaneous quantitation of multiple analytes, further enhancing research productivity by providing more data from less sample in less time.

A high-purity monoclonal antibody

The BD IL-17A antibody (clone N49-653) reacts with recombinant and natural human IL-17A, also known as CTLA-8. IL-17A is a member of the IL-17 family of proinflammatory cytokines that includes IL-17A, IL-17B, IL-17C, IL-17D, IL-17E (IL-25), and IL-17F.¹

Maximum flexibility in multicolor experiment design

The IL-17A antibody (clone N49-653) is available in several fluorochrome conjugates, including Alexa Fluor® 488, Alexa Fluor® 647, and PE for maximum flexibility. Researchers can use them, in combination with BD Cytofix/Cytoperm™ buffers and staining protocol, to design multicolor panels for flow cytometric analysis of IL-17-producing cells.

More data from less sample with BD CBA assays

The BD CBA system makes it possible to quantitate IL-17A and its related factors IL-21 and the shared p40 subunit of IL-12 and IL-23 in human serum, plasma, and supernatant samples. The multiplex format significantly reduces sample requirements and experiment time. Multiplexing can also yield contextual answers that might be more relevant than single measurements. A single-plex assay is also available for detection of TGF- β 1 in acidified samples.

The BD CBA system works with flow cytometry to create a powerful multiple analyte (multiplex) assay system. It uses antibody-coated beads to capture analytes efficiently. Each bead has a unique fluorescence intensity. With the broad dynamic range of fluorescence detection offered by flow cytometry, multiple analytes can be run simultaneously in a single tube, significantly reducing sample requirements and experiment time.

Visit bdbiosciences.com/cba for more information.

BD Human IL-17A Reagents - A comprehensive portfolio for inflammation and autoimmunity research

Th17 cells in inflammation and autoimmune response

A subset of helper T cells that produce IL-17A has been shown to have an important role in the induction of autoimmune tissue injury. These cells (called Th17 cells) are distinct from Th1 or Th2 cells since they do not produce classical Th1 or Th2 cytokines such as IFN- γ or IL-4. They play a key role in human models of autoimmunity, and it has been suggested that the differentiation pathway of Th17 cells requires IL-1 β , IL-6, TGF- β , IL-21, and IL-23.²⁻⁴ RORC2 (the human analog of murine ROR γ T) is a key transcription factor involved in the induction of Th17 cells.² RORC2 expression can be upregulated by TGF- β alone, although it is not sufficient to induce IL-17 expression.³ Furthermore, it is believed that the relative balance of TGF- β in steady state would tilt the balance in favor of either Th17 or regulatory T cell differentiation in diverse tissues.

Maintenance of a Th17 response primarily depends on IL-1 β , IL-23 (p19/p40), and TNF produced by antigen presenting cells. IL-23 binds to the IL-23 receptor, which triggers downstream activation of STAT3 and subsequent production of IL-17A.

Since IL-17A leads to the induction of many proinflammatory factors such as TNF, IL-6, and IL-1 β , it has been suggested that Th17 cells might be responsible for the development and/or progression of autoimmune diseases such as systemic lupus erythematosus and multiple sclerosis.⁴

References

1. Aggarwal S, Gurney AL. IL-17: prototype member of an emerging cytokine family. *J Leukoc Biol.* 2002;71:1-8.
2. Yang L, Anderson DE, Baecher-Allan C, et al. IL-21 and TGF-beta are required for differentiation of human Th17 cells. *Nature.* 2008;454:350-352.
3. Manel N, Unutmaz D, Littman DR. The differentiation of human Th-17 cells requires transforming growth factor- β and induction of the nuclear receptor ROR γ t. *Nat Immunol.* 2008;9:641-649.
4. Volpe E, Servant N, Zollinger R, et al. A critical function for transforming growth factor- β , interleukin 23 and proinflammatory cytokines in driving and modulating human Th-17 responses. *Nat Immunol.* 2008;9:650-657.

Ordering Information

Human IL-17A Reagents

Description	Clone	Apps	Quantity	Cat. No.
Human IL-17A CBA Flex Set		FCM	100 tests	560383
Human IL-17A Alexa Fluor® 488	N49-653	IC/FCM	25 tests	560489
			100 tests	560488
Human IL-17A Alexa Fluor® 647	N49-653	IC/FCM	25 tests	560491
			100 tests	560490
Human IL-17A PE	N49-653	IC/FCM	25 tests	560487
			100 tests	560486

Related Products

Description	Clone	Apps	Quantity	Cat. No.
Human IL-1 β CBA Flex Set		FCM	100 tests	558279
Human IL-6 CBA Flex Set		FCM	100 tests	558276
Human IL-12/IL-23p40 CBA Flex Set		FCM	100 tests	560154
Human IL-21 CBA Flex Set		FCM	100 tests	560358
Human TGF- β 1 CBA Flex Set (Single Plex)		FCM	100 tests	560429
Human TNF CBA Flex Set (Bead C4)		FCM	100 tests	560112
Human TNF CBA Flex Set (Bead D9)		FCM	100 tests	558273
Human Soluble Protein Master Buffer Kit		FCM	100 tests	558264
			500 tests	558265
Human IL-21 Alexa Fluor® 647	3A3-N2.1	IC/FCM	100 tests	560493
Human IL-21 PE	3A3-N2.1	IC/FCM	100 tests	560463
BD Cytofix/Cytoperm™ fixation/permeabilization solution kit		IC/FCM	250 tests	554714
BD Cytofix/Cytoperm™ Plus fixation/permeabilization solution kit with BD GolgiPlug™		IC/FCM	250 tests	555028
BD Cytofix/Cytoperm™ Plus fixation/permeabilization solution kit with BD GolgiStop™		IC/FCM	250 tests	554715



BD Biosciences

2350 Qume Drive
San Jose, CA 95131
US Orders: 877.232.8995
answers@bd.com
bdbiosciences.com

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