

# Mouse Th17 Research Products

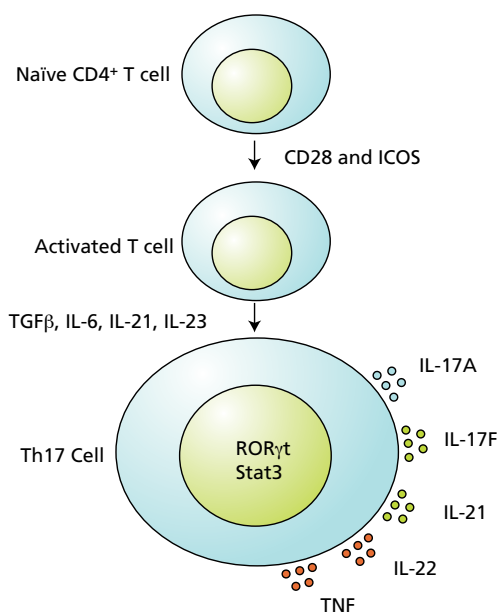
A comprehensive portfolio for inflammation and autoimmunity research

## Features

Monoclonal antibodies to IL-17A and IL-17F available in a wide selection of fluorochromes

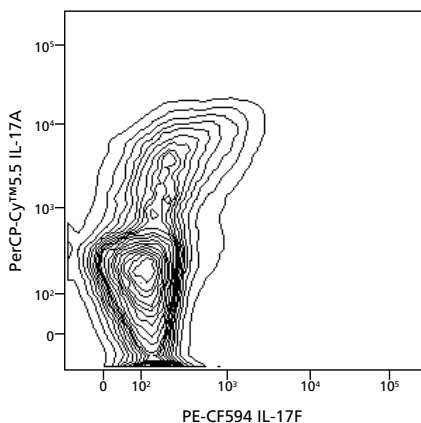
Anti-ROR $\gamma$ t for studying Th17 responses at the transcription level

Quantify multiple Th17 cytokines simultaneously with BD Cytometric Bead Array Flex Sets



## Mouse 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 $\gamma$ t and Stat3 transcription factors.



## Co-expression of IL-17A and IL-17F.

Mouse spleen cells were cultured under Th17 polarizing conditions. Data shown is gated on CD3<sup>+</sup>, CD4<sup>+</sup> live cells. Viability was determined using BD Horizon™ Fixable Viability Stain 450 (FVS450).

BD Biosciences expanded selection of reagents provides essential tools for research in Th17 biology. BD Pharmingen™ IL-17A and IL-17F reagents are available in fluorochrome-conjugated formats for flow cytometry and as BD™ Cytometric Bead Array (CBA) assays to support research on the role of Th17 cells in inflammation and autoimmune responses. The BD CBA format enables simultaneous quantitation of multiple analytes, further enhancing research productivity by providing more data from less sample and in less time.

## Maximum flexibility in multicolor experimental design

The BD Pharmingen brand IL-17A and IL-17F antibodies recognize the key Th17 cytokines. Both IL-17A and IL-17F are members 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.<sup>1</sup> Both antibodies are available in a selection of many different fluorochromes, enabling maximum flexibility in the design of multicolor panels with BD Cytofix/Cytoperm™ buffers and staining protocols for flow cytometric analysis of IL-17-producing cells.

For research at the transcription factor level, an antibody to ROR $\gamma$ t is available (clone Q31-378). This antibody recognizes the signature Th17 transcription factor using the BD Pharmingen™ Transcription Factor Buffer Set and can be combined with surface staining for analysis of heterogeneous cell populations.

## 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 IL-23 p19/p40) in mouse serum, plasma, and supernatant samples in a multiplex format that significantly reduces sample requirements and experiment time. Multiplexing can also yield contextual answers that might be more relevant than single measurements.

The BD CBA system uses 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. Visit [bdbiosciences.com/cba](http://bdbiosciences.com/cba) for more information.

Visit [bdbiosciences.com/tcell](http://bdbiosciences.com/tcell) for more information.

# Mouse Th17 Research Products

## 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- $\gamma$  or IL-4. They play a key role in mouse models of autoimmunity, and it has been suggested that the differentiation pathway from a naïve T-helper cell to a Th17 cell involves a combination of TGF- $\beta$  and IL-6.<sup>2</sup> ROR $\gamma$ t is a key transcription factor involved in induction of Th17 cells. Some ROR $\gamma$ t expression is induced in response to IL-6 or TGF- $\beta$ , but the generation of Th17 cells requires TGF- $\beta$  as well as IL-6.

Furthermore, it is believed that the relative balance of IL-6 and TGF- $\beta$  in steady state would tilt the balance in favor of either Th17 or Treg differentiation in diverse tissues.<sup>3</sup>

Induction of the Th17 subset requires TGF- $\beta$  and IL-6, while amplification of IL-17A-producing cells is dependent upon TGF- $\beta$  and IL-21. Maintenance of a Th17 response primarily depends on IL-23 (p19/p40). IL-23 binds to the IL-23 receptor, which triggers downstream activation of Stat3 and subsequent production of IL-17A and IL-17F. Since IL-17A and IL-17F lead to the induction of many proinflammatory factors such as TNF, IL-6, and IL-1 $\beta$ , it has been suggested

that Th17 cells might be responsible for the development and/or progression of autoimmune diseases such as experimental autoimmune encephalomyelitis (EAE) and colitis.<sup>4</sup>

## References

1. Aggarwal S, Gurney AL. IL-17: prototype member of an emerging cytokine family. *J Leukoc Biol.* 2002;71:1-8.
2. Bettelli E, Oukka M, Kuchroo VK. T(H)-17 cells in the circle of immunity and autoimmunity. *Nat Immunol.* 2007;8:345-350.
3. Ivanov II, McKenzie BS, Zhou L, et al. The orphan nuclear receptor ROR $\gamma$ t directs the differentiation program of proinflammatory IL-17+ T helper cells. *Cell.* 2006;126:1121-1133.
4. Hunter CA. Act1-ivating IL-17 inflammation. *Nat Immunol.* 2007;8:232-234.

## Ordering Information

### Antibody and Buffer Product List

Description	React	Clone	Isotype	Apps	Format	Size	Cat. No.
IL-17A	Ms	TC11-18H10	Rat IgG <sub>1</sub> , $\kappa$	IC/FCM	Alexa Fluor® 488	0.1 mg	560220
				IC/FCM	Alexa Fluor® 647	0.1 mg	560184
				IC/FCM	Alexa Fluor® 700	50 $\mu$ g	560820
				IC/FCM	APC-Cy <sup>TM</sup> 7	50 $\mu$ g	560821
				IC/FCM	BD Horizon <sup>TM</sup> V450	50 $\mu$ g	560522
				IC/FCM	PE	0.1 mg	559502
				IC/FCM	PerCP-Cy <sup>TM</sup> 5.5	0.1 mg	560666
IL-17F	Ms	O79-289	Ms IgG <sub>1</sub> , $\kappa$	IC/FCM	Alexa Fluor® 488	0.1 mg	561631
				IC/FCM	Alexa Fluor® 647	0.1 mg	561630
				IC/FCM	PE	0.1 mg	561627
				IC/FCM	PerCP-Cy5.5	50 $\mu$ g	562194
				IC/FCM	PE-CF594	50 $\mu$ g	562418
BD Cytofix/Cytoperm fixation/permeabilization kit with BD GolgiPlug <sup>TM</sup>				IC/FCM		250 tests	555028
BD Cytofix/Cytoperm fixation/permeabilization kit with BD GolgiStop <sup>TM</sup>				IC/FCM		250 tests	554715
ROR $\gamma$ t	Ms	Q31-378	Ms IgG <sub>2a</sub> , $\kappa$	FCM	PE	50 $\mu$ g	562607
BD Pharmingen Transcription Factor Buffer Set				IC/FCM		100 tests	562574
BD Horizon Fixable Viability Stain 450				IC/FCM		0.1 mg	562247

Please visit [bdbiosciences.com](http://bdbiosciences.com) for the latest product listings, including smaller sizes.

### BD Cytometric Bead Array Product List

Description	Size	Cat. No.
Mouse IL-1 $\beta$ Flex Set (Bead E5)	100 tests	560232
Mouse IL-6 Flex Set (Bead B4)	100 tests	558301
Mouse IL-17A Flex Set (Bead C5)	100 tests	560283
Mouse IL-17F Flex Set (Bead D6)	100 tests	562174
Mouse IL-21 Flex Set (Bead B6)	100 tests	560160
Mouse IL-23 p19/p40 Flex Set (Bead D7)	100 tests	562575
Mouse TNF Flex Set (Bead C8)	100 tests	558299
Mouse/Rat Soluble Protein Master Buffer Kit	500 tests	558267
	100 tests	558266
Mouse Th1/Th2/Th17 Cytokine Kit	80 tests	560485

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