

# Mouse Th17 Research Products

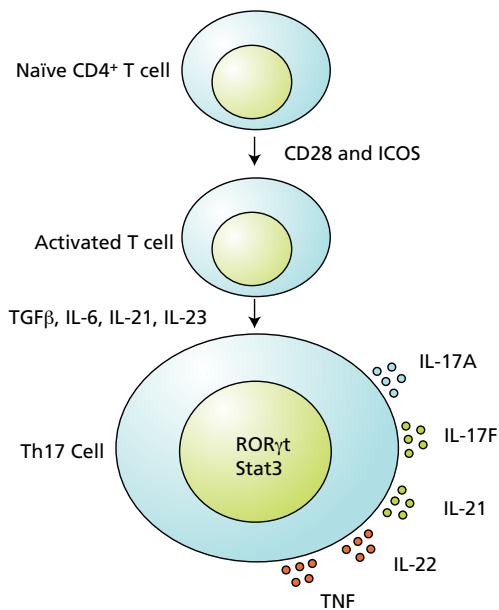
A comprehensive portfolio for inflammation and autoimmunity research

## Features

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

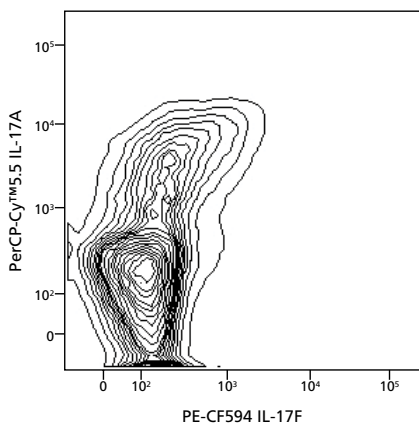
Anti-ROR $\gamma$ t for studying Th17 responses at the transcription level

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.



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## 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™7         | 50 $\mu$ g | 560821   |
|  |       |            |                                 | IC/FCM | BD Horizon™ V450 | 50 $\mu$ g | 560522   |
|  |       |            |                                 | IC/FCM | PE               | 0.1 mg     | 559502   |
|  |       |            |                                 | IC/FCM | PerCP-Cy™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™ |       |            |                                 | IC/FCM |                  | 250 tests  | 555028   |
| BD Cytofix/Cytoperm fixation/permeabilization kit with BD GolgiStop™ |       |            |                                 | 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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## BD Biosciences

2350 Qume Drive  
San Jose, CA 95131  
US Orders: 855.236.2772  
[answers@bd.com](mailto:answers@bd.com)  
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