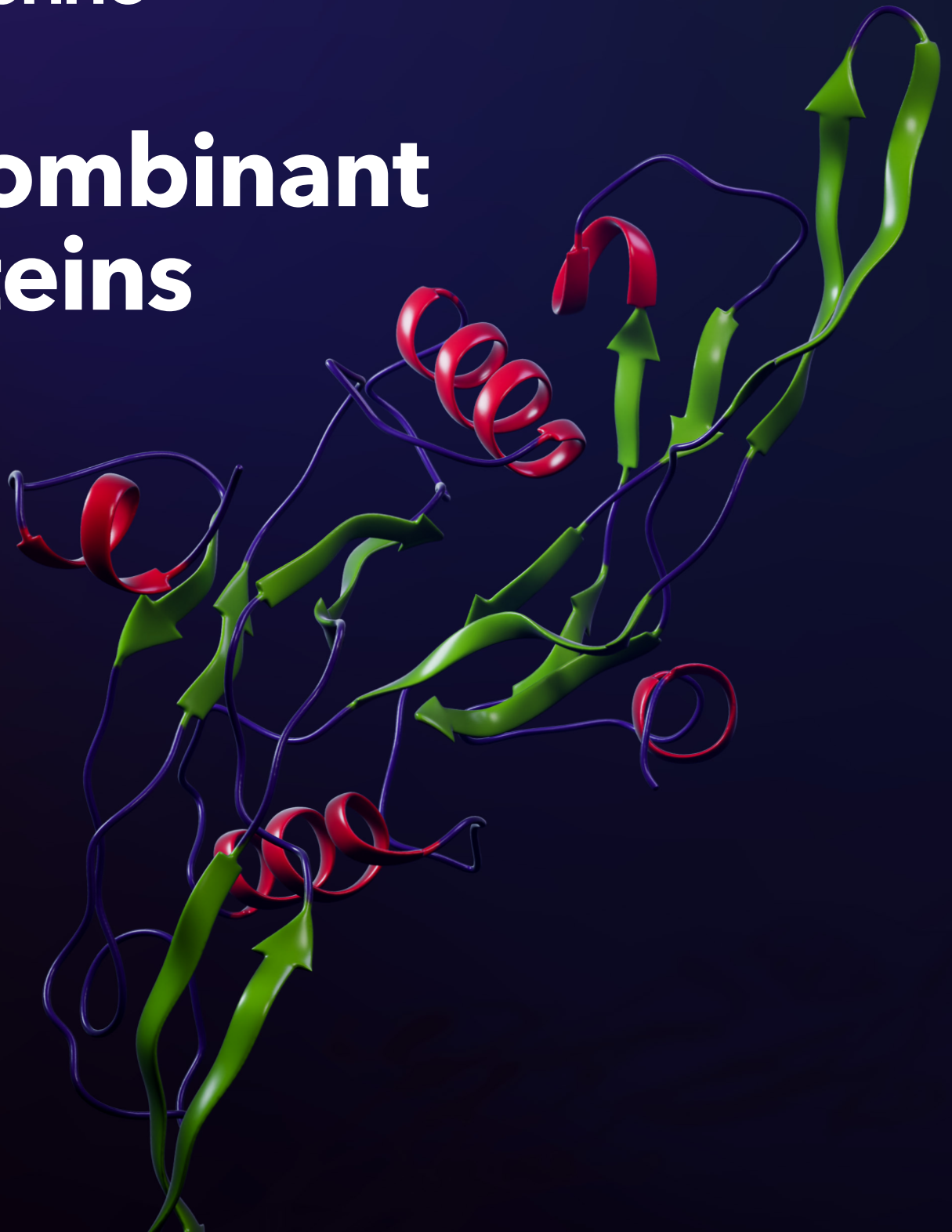


biotechne®

# Recombinant Proteins



Find it at [fishersci.com](https://fishersci.com)

 **fisher** scientific  
part of Thermo Fisher Scientific

# Setting the Standard in Proteins for Almost **40 years**

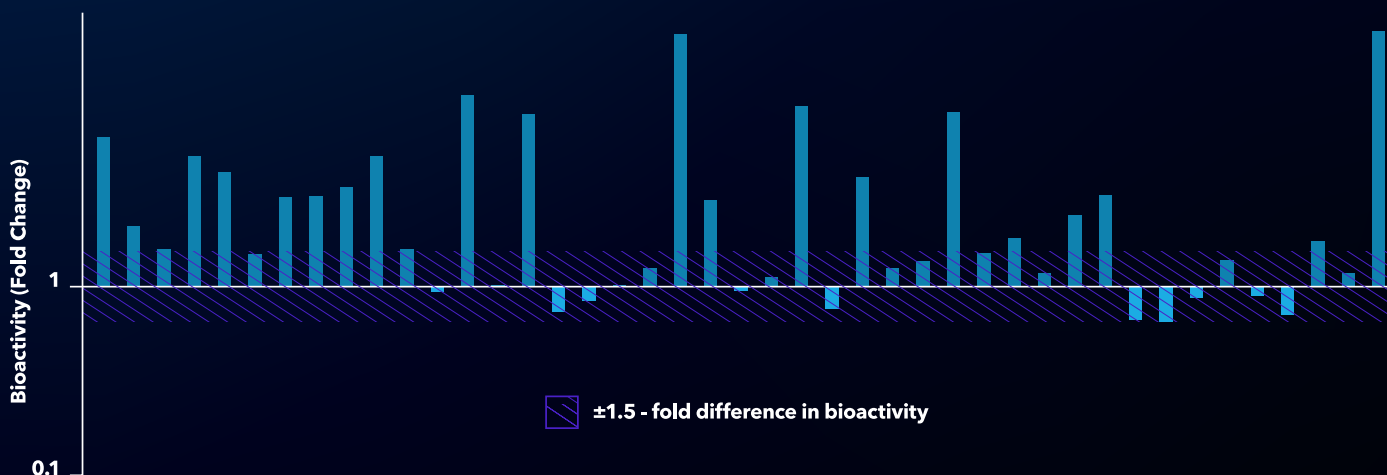
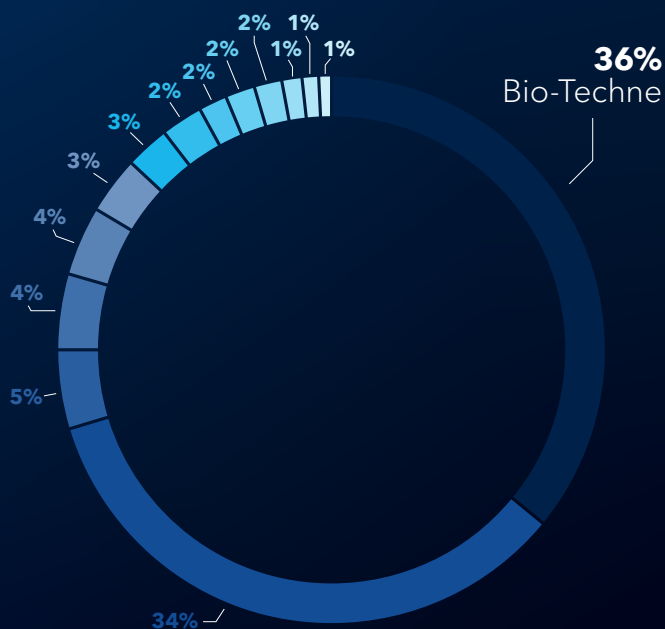
All of our R&D Systems-brand proteins by Bio-Techne are produced by scientists – for scientists, so we understand that producing recombinant proteins is about generating the reliable tools that researchers need to thrive. We manufacture more than 95% of our proteins. It gives us complete control over all aspects of production, so nothing becomes a Bio-Techne protein that does not meet our industry-leading specifications.

## Trusted by Research

In a survey of more than 800 publications covering proteins in the areas of cancer, immunology, neuroscience and stem cell research, 36% cited the use of Bio-Techne proteins, greater than any other single protein manufacturer.

## Leading the Way in Bioscience

Bio-Techne recombinant proteins were compared with those from other manufacturers in side-by-side bioassays. Over half of the 43 tested Bio-Techne proteins exhibited 1.5-fold or higher bioactivity, compared to competitors' proteins.



# First Class Products and Services

We understand that experimental outcomes can be limited by the performance of your protein. That is why the focus on quality starts at the birth of each Bio-Techne protein.

During product development our optimization process involves analysis of protein sequence, expression system, and formulation to ensure we provide proteins with the best possible bioactivity and performance.

We are proud that Bio-Techne's experience and dedication to protein development and manufacturing is unmatched in the life science industry.

Our quality commitment does not stop with our products. Wherever you are in the world, you can access our highly trained technical service staff and the scientists responsible for protein development, so we can answer any questions you might have.

## The Four Pillars of Bio-Techne Quality

**1**

### **BIOACTIVITY**

Biological activity assays, based on the available scientific literature, are developed for each protein we produce. Each new lot has to pass our strict QC activity parameters before it is released to the market.

**2**

### **CONSISTENCY**

You can be sure of the reliability of our proteins because of our rigorous QC and production standards. Each new lot is compared to the previous for bioactivity, purity and endotoxin level.

**3**

### **STABILITY**

We constantly monitor the condition of our proteins to check for long term performance. Our proteins are shipped lyophilized or in specially optimized formulations, so each recombinant protein reaches you in perfect condition.

**4**

### **PURITY**

Be confident that the results obtained in your experiments are not due to contaminants. The majority of our proteins have >95% purity and have a guaranteed industry-leading endotoxin level of  $\leq 0.1$  EU/ $\mu$ g (established by LAL assay).

# Covering the Research Areas You Need At Every Step

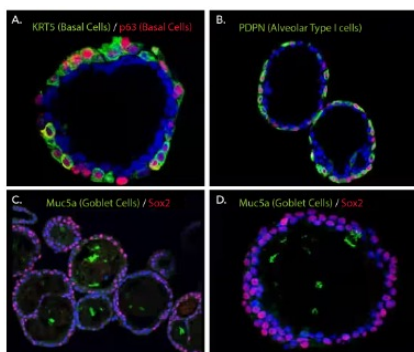
What is important to you in a recombinant protein? Is it the species, the activity, available size, expression system or documentation?

Every research question is unique and so requires a unique solution. That is why the range of Bio-Techne recombinant proteins gives you the choices to tailor the right protein solution to your research.

By listening to the scientists we serve, Bio-Techne produces the protein tools that are the most useful to you.

From immunology to apoptosis, neuroscience to cancer research – our protein catalog spans the widest range of research areas. This ensures that Bio-Techne is your partner for all recombinant protein needs – whatever your research goals.

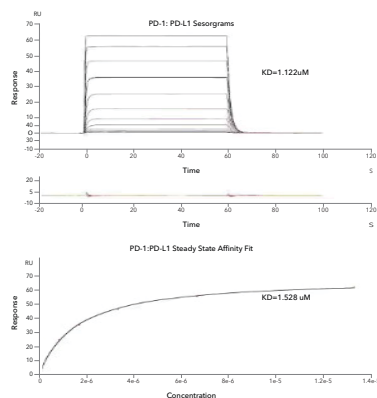
## STEM CELLS



### Culture and Characterization of Adult Stem Cell-derived Human Lung Organoids.

Adult stem cells isolated from human lung biopsy tissue were embedded in Cultrex UltiMatrix RGF Basement Membrane Extract (Catalog # BME001-05) and cultured for 20-60 days in lung organoid expansion medium, which includes R-Spondin 1 (Catalog # 4645-RS), Noggin (Catalog # 6057-NG) FGF-7 (Catalog # 251-KG), and FGF-10 (Catalog # 345-FG), along with the other reagents listed in the lung organoid expansion medium recipe in the human lung organoid culture protocol. Lung organoids were able to differentiate and exhibit markers for various cell types of the lung. Lung organoids were stained with (A) a Rabbit Anti-Human Cytokeratin 5 (KRT5) Monoclonal Antibody (Catalog NB110-56916; green) and a Goat Anti-Human p63/TP73L Polyclonal Antibody (Catalog # AF1916; red) to visualize basal cells, (B) a Hamster Anti-Mouse Podoplanin (PDPN) Monoclonal Antibody (Catalog # NB600-1015; green) to visualize alveolar type I cells and a Goat Anti-Human p63/TP73L Polyclonal Antibody (Catalog # AF1916; red) to visualize basal cells, and (C, D) a Mouse Anti-MUC5AC Monoclonal Antibody (Catalog # NBP2-15196; green) to visualize Goblet cells and a Mouse Anti-Human/Mouse/Rat SOX2 Monoclonal Antibody (Catalog # MAB2018; red). All samples were counterstained with DAPI (Catalog # 5748; blue).

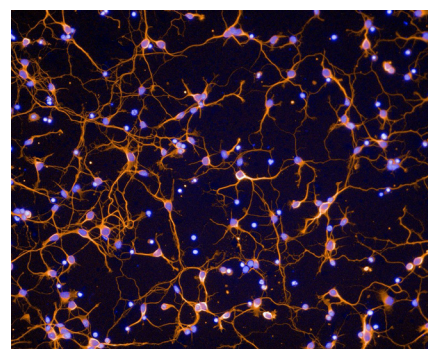
## IMMUNOLOGY



### Affinity Measurements and Binding Kinetics of the PD-1:PD-L1 Interaction by Surface Plasmon Resonance.

Sensorgram data of captured Avi-tag Biotinylated PD-L1 His tag (Catalog # AVI9049) binding to PD-1 His tag (Catalog # 8986-PD). The corresponding overlaid kinetic fits with the residual plot shown below. The concentration of PD-1 His-tag ranged from 3.2 nM to 13.2  $\mu$ M. The corresponding steady state affinity fit is shown below. The experiment was performed on a BiacoreT200, GE Healthcare.

## NEUROSCIENCE



### Recombinant Mouse Meteorin CATALOG # 3475-MN

Immunofluorescent image of E16-E18 stage rat cortical neurons treated with Meteorin (10  $\mu$ g/ $\mu$ L) to induce neurite outgrowth. Cells were stained with a nuclear stain (Blue, DAPI) and beta-III Tubulin (Red, Cat# MAB1195).

# The Format You Need – For Your Research and Clinical Applications

As research projects evolve – from basic research to pre-clinical applications, the requirements for your reagents also evolve. The availability of key reagents in the format you need can influence the pace of your discovery.

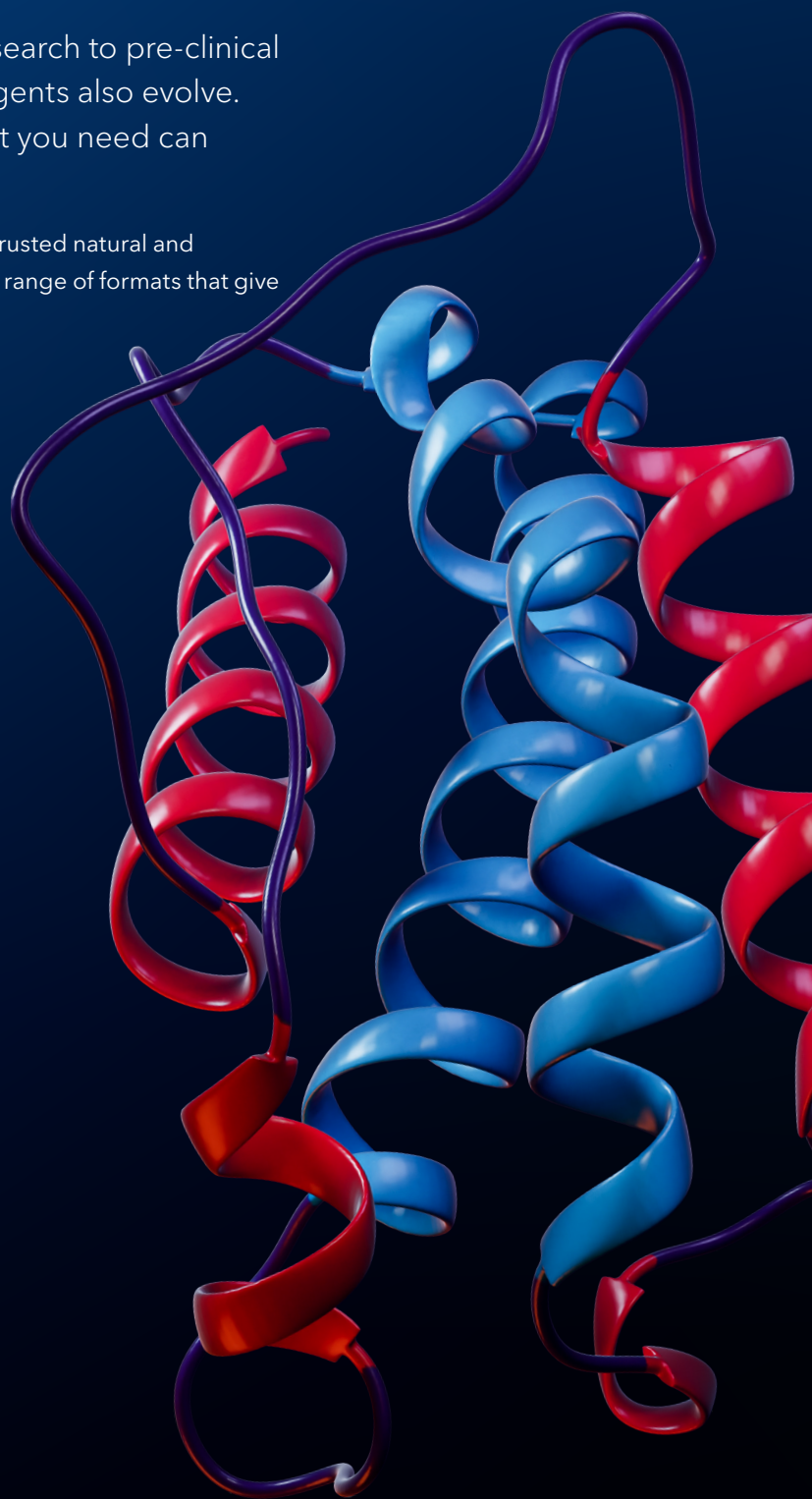
With over 30 years of experience in producing the most trusted natural and recombinant proteins, Bio-Techne produces proteins in a range of formats that give you choice and flexibility whatever your requirements.

## Research Grade

Designed for the researcher, we offer a wide selection of cytokines, growth factors, enzymes, and drug targets. Often these are available with different tags, biotinylation, or fluorescent conjugation.

## Animal-Free Manufacturing Conditions

We offer Animal-free Proteins for those interested in pursuing clinical applications in cell therapy or minimizing ethical and safety issues associated with animal-derived reagents. These proteins allow for a smooth transition to clinical manufacturing.





# Constantly Striving for **Great Performance**

We know that scientific progress doesn't stand still, and in developing research solutions, neither do we.

From the daily challenges of the laboratory, changing reagent demands and emerging scientific trends, we are constantly challenged by our customers to solve their research demands.

Providing the best reagents and solutions to meet your challenges is at the heart of Bio-Techne's mindset. Using our expertise and experience, we develop innovative protein reagent and kits to help solve your important scientific questions.

## **Protein Process Engineering**

From innovative cell culture and purification techniques to engineering proteins with enhanced characteristics, we employ industry leading protein biochemistry to create innovative new products.

## **Bioactivity –So What?**

You may think that all recombinant proteins are created equally, but using poorly performing proteins in your experiments could be wasting your precious research budget.

Better performing proteins mean you need to use less, therefore saving you money.

# Specialized Proteins

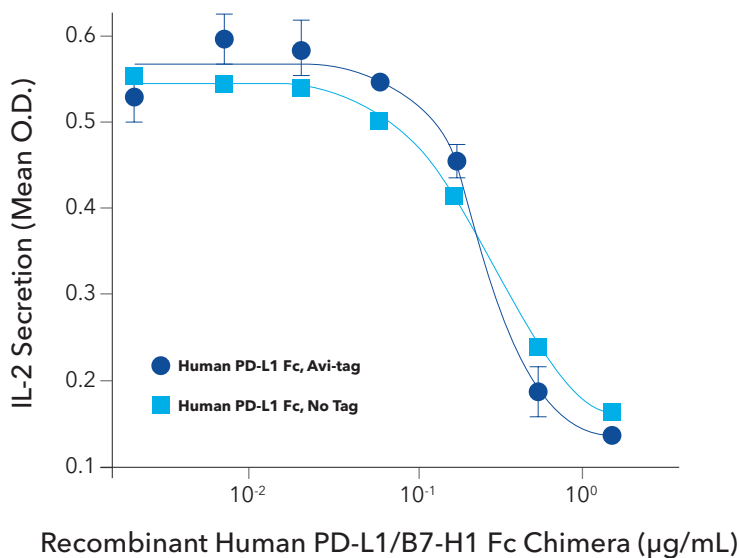
## Avi-Tag Biotinylation and Fluorescent Conjugation

### Bringing You the Best Solutions

All Bio-Techne proteins and products are born with the demands of our customers in mind, as they are developed by experienced researchers.

To make sure we bring only the best protein products to life, we use the latest science and technology, which ensures they are relevant and useful scientific tools.

### Biotinylated Proteins



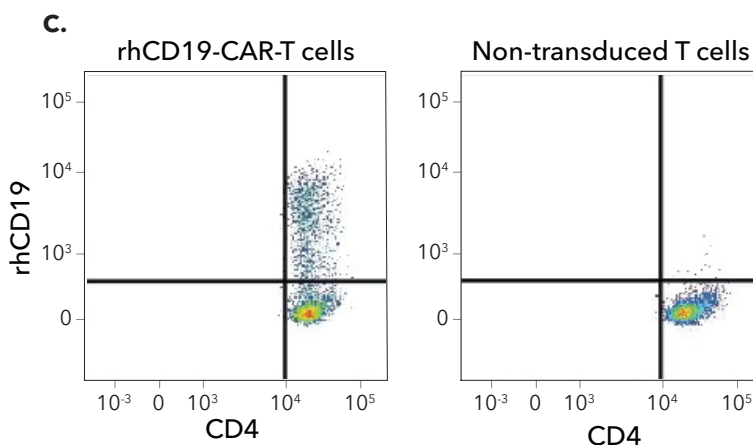
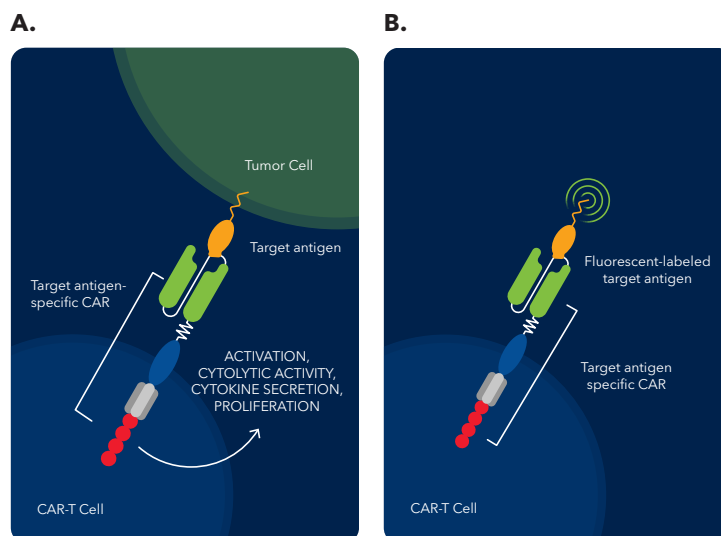
### Unlabeled and Avi-tag Biotinylated Recombinant Human PD-L1/B7-H1 Display Comparable Bioactivity.

Human T lymphocytes were treated with the indicated concentrations of either unlabeled PD-L1/B7-1 Fc Chimera (Catalog # 156-B7; light blue line) or Avi-tag Biotinylated PD-L1/B7-H1 Fc Chimera (Catalog # AVI156; dark blue line). IL-2 secretion was measured in cell culture supernatants using the Human IL-2 Quantikine® ELISA Kit (Catalog # D2050). The similarity in the activities of the two proteins highlights that the Avi-tag biotinylated protein is fully functional.

Bio-Techne offers a huge selection of avi-tag and amine-biotinylated proteins to fit your research needs.

# What are Bio-Techne Fluorokines™ and how can I use them for my research?

Fluorokines™ are fluorescent-labeled recombinant proteins that are used to directly stain and detect target molecules using flow cytometry. We offer a line of fluorescent CAR targets that can be used in flow cytometry and offer greater specificity than antibodies or Ig-labeling reagents. Fluorescent-labeled COVID-19 targets and immune checkpoint targets are also available. These reagents undergo rigorous testing to ensure consistent labeling across lots.



#### Demonstration of the Utility of Fluorokines for Evaluating CAR Expression.

**(A)** CAR-T cell therapy is based on the principle that T cells removed from a patient or donor can be genetically engineered to express a specific chimeric antigen receptor (CAR). Once these CAR-T cells are infused back into the patient, the CAR will bind to its specific target antigen on the surface of the patient's tumor cells, activating the T cells, and allowing them to attack and destroy the tumor cells. **(B)** T cells expressing the CAR can be directly stained using a Fluorokine (fluorescent target antigen) and the percentage of CAR-expressing cells can be detected by flow cytometry. **(C)** CD4<sup>+</sup>CD8<sup>+</sup> T cells were transduced with a hCD19-CAR (left) or not transduced (right). Cells were stained with a PE-Cy7-CD4 and CD19 Fc Chimera Atto 488 Protein (Catalog # ATJ9269), and detected by flow cytometry.

Distributed by Fisher Scientific. Contact us today:

In the United States

Order online: [fishersci.com](https://fishersci.com)

Call customer service: 1-800-766-7000

 **fisher scientific**  
part of Thermo Fisher Scientific

© 2024 Thermo Fisher Scientific Inc. All rights reserved.

Trademarks used are owned as indicated at [fishersci.com/trademarks](https://fishersci.com/trademarks).

BN247723521-US\_BioTechne\_Recombinant Proteins\_Brochure