

Agilent Seahorse XF T Cell Metabolic Profiling Kit

Robust assays for assessing T cell metabolic fitness and persistence with XF Analyzers



A kit for robust metabolic-based measurements linked to T cell persistence and metabolic fitness

Metabolism has been demonstrated to regulate immune cell responses in both healthy and disease states. Agilent Seahorse Extracellular Flux Analysis (XF), recognized as a leading technology for the study of immune cell metabolism, can offer unique insights into the critical drivers behind immune cell function, providing opportunities to optimize cell therapy products by manipulating metabolic programs and improving metabolic fitness.

The Agilent Seahorse XF T Cell Metabolic Profiling kit allows for robust and accurate measurements of both glycolytic and mitochondrial activities in T cell populations, providing a complete picture of T cell energy metabolism. These measurements can be linked to antitumor properties of T cell therapy products and are therefore valuable in designing and optimizing therapy development processes to improve T cell persistence or avoid exhaustion in the tumor microenvironment. The kit not only provides improved reagents, but also features a streamlined assay workflow, reducing assay preparation time and minimizing the need for uncoupler optimization. The kit is also integrated with Wave Pro and Seahorse Analytics software to simplify data analysis, visualization, and interpretation.

Two assay workflows to obtain a complete picture of T cell energy metabolism

The XF T Cell Metabolic Profiling kit can support two assay workflows: a T cell persistence assay workflow and a T cell metabolic fitness assay workflow.

The T cell persistence assay is designed to assess the ability of T cells to develop durable immune response and to generate memory cells after engraftment. Several publications indicate that distinct metabolic profiles of T cells are characteristics linked to improved T cell persistence after adoptive cell transfer. This assay can be used in evaluation of different construct designs, engineering strategies, starting material selection, or metabolic conditioning during the cell expansion process.

The T cell fitness assay measures the ability of T cells to maintain metabolic fitness under metabolically restrictive conditions. This assay enables determination of the basal metabolic phenotype and maximal respiratory capacity in T cells in restrictive assay medium conditions or in the presence of metabolic inhibitors. In this way, it assesses the capacity of T cells to maintain metabolic fitness in tumor microenvironments.

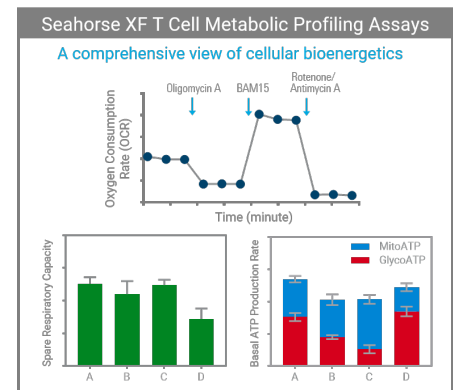


Figure 1. Agilent Seahorse XF T Cell Metabolic Profiling kit provides a comprehensive picture of cellular energy metabolism.

Agilent Seahorse XF T Cell Metabolic Profiling kit

- Provides optimized and easy-to-use reagents for robust measurements with different T cell populations
- Supports two streamlined assay protocols to obtain bioenergetic parameters linked to critical attributes for antitumor function
- Offers dedicated data analytics that deliver interpretable and reliable conclusions

Product information

- Each Seahorse XF or XFp T Cell Metabolic Profiling kit contains six pouches. Each pouch contains one vial each of oligomycin A, BAM15 and rotenone/antimycin A, sufficient for one full plate assay in 96-well or 8-well format.
- The ready-to-use Seahorse XF PDL-coated cell culture microplates are recommended for use with this assay kit. These products reduce data variation commonly caused by a manual well-coating process. They also offer the convenience of eliminating the time and labor involved in manually coating.
- Seahorse XF RPMI Medium, pH 7.4, and Seahorse XF supplements (glucose, pyruvate, and glutamine) are recommended for optimal results.

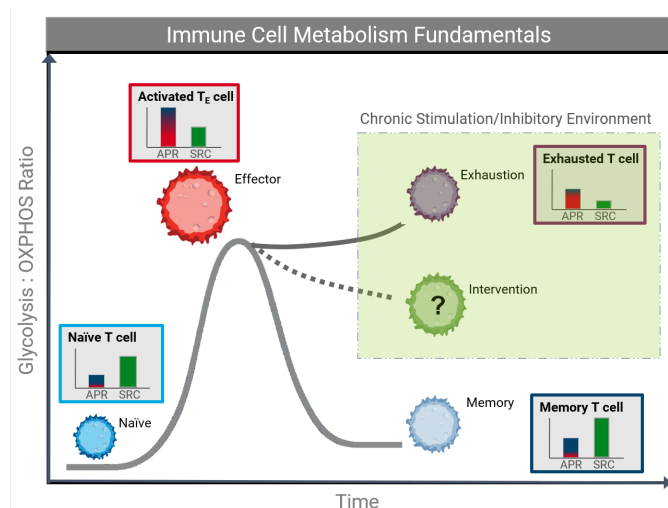


Figure 2. T cell metabolic fundamentals, illustrating the evolution of metabolic phenotypes through the T cell activation and proliferation cycle (gray lines) and their linkage to T cell fate, fitness, and function.

Ordering information

Part Number	Product Description	Compatible Analyzer
103772-100	Seahorse XF T Cell Metabolic Profiling kit	XF Pro Analyzer, XFe96 Analyzer
103771-100	Seahorse XFp T Cell Metabolic Profiling kit	HS Mini, XFp Analyzers

Related products

103798-100	Seahorse XFe96/XF Pro PDL FluxPak Mini	XF Pro Analyzer, XFe96 Analyzer
103799-100	Seahorse XFe96/XF Pro PDL Plate	XF Pro Analyzer, XFe96 Analyzer
103721-100	Seahorse XFp FluxPak (PDL plate)	HS Mini, XFp Analyzer
103722-100	Seahorse XFp PDL Cell Culture Miniplate	HS Mini, XFp Analyzer
103724-100	Seahorse XF HS Mini FluxPak (PDL miniplate)	HS Mini Analyzer
103727-100	Seahorse XF HS PDL Miniplate	HS Mini Analyzer
103576-100	Seahorse XF RPMI Medium, pH 7.4, 500 mL*	All analyzers
103577-100	Seahorse XF 1.0 M Glucose Solution, 50 mL	All analyzers
103578-100	Seahorse XF 100 mM Pyruvate Solution, 50 mL	All analyzers
103579-100	Seahorse XF 200 mM Glutamine Solution, 50 mL	All analyzers
201280-100	Agilent Reservoir, 12 column, polypropylene	All Analyzers
204365-100	Agilent Reservoir, 12 column, Polypropylene, irradiated	All Analyzers

* This medium can also be purchased together with the supplements/substrates listed in this table as bundled products (part number 103681-100).

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