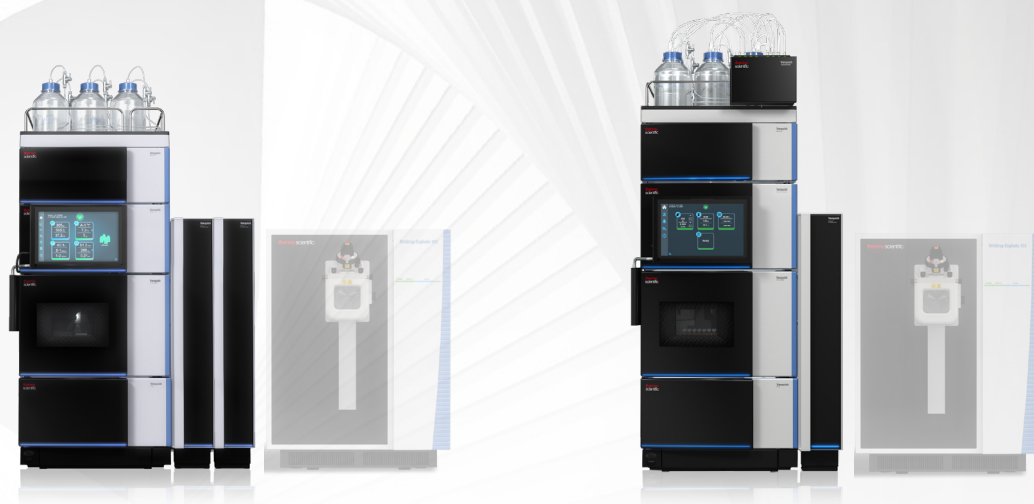


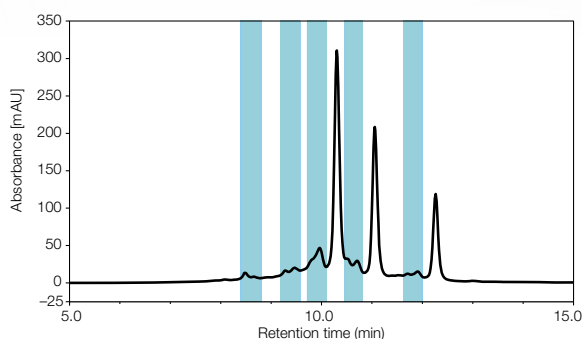
Analytical HPLC purification solutions

Online and offline workflows to support your application needs

Need more options for your HPLC purifications? Our HPLC purification portfolio includes online and offline workflows to fully support your application needs. By giving you multiple options, we can help you confidently separate and purify complex samples with pinpoint precision.



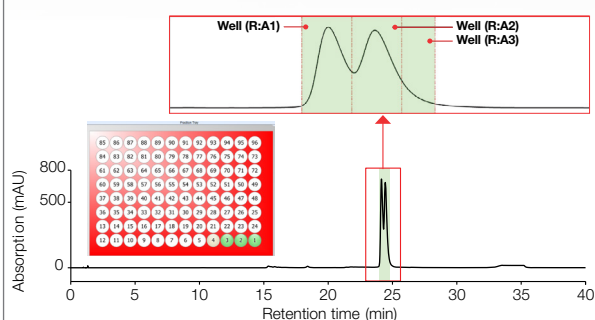
Thermo Scientific™ Vanquish™
Online 2D-LC systems



Get in-depth impurity analysis with fully automated online 2D-LC workflows

Analytical focused workflow: compounds go to waste after detection

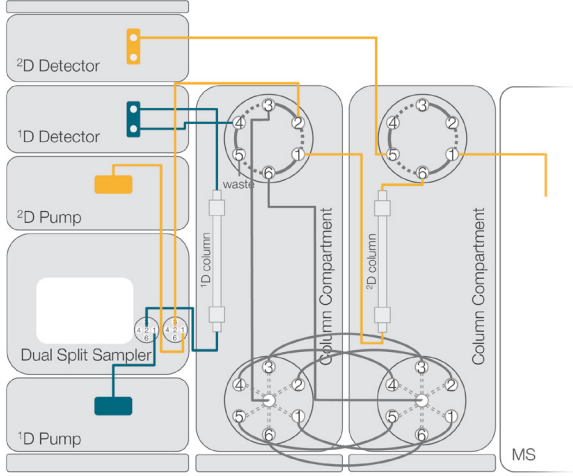
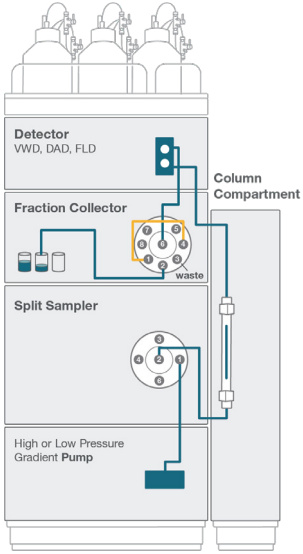
Thermo Scientific™ Vanquish™
Analytical Purification LC systems



Isolate your analytes in high-yield and high-purity with offline fractionation workflows

Focus on further processing steps: allows compound collection

Online or offline?	Online purification: Sample remains within the flow path	Offline purification: Sample leaves the flow path
Automated ²D reinjection	Yes, uses loops/trap columns to auto transfer fractioned ¹ D effluent to ² D	No, offline purification only and ² D analysis required manual intervention for reinjection
Number of fractions collected	Up to six using a sample loop array	Up to 1,536 depending on rack selection

	Vanquish Online 2D-LC systems	Vanquish Analytical Purification LC systems
		
	<p>Save time and preserve your sample integrity by immediate analysis of fractions</p> <p>Fractions collected into loops or trap column</p>	<p>Preserves your fractions for further structural analysis and biological studies</p> <p>Fractions collected into vials or plates</p>
Purification workflow	¹ D fractionation and online ² D analysis	¹ D fractionation and offline ² D analysis
Analyte concentration	Low abundant and higher	Low abundant with pooling and higher
Upstream purification workflows	<ul style="list-style-type: none"> Speeds compound screening in early development steps Freedom of analysis combining MS-incompatible LC methods and LC-MS by online desalting Confirm purification method efficacy 	<ul style="list-style-type: none"> Sample prep for next step: Desalting for LC-MS; drying for storage Pooling (enrichment) to increase concentration of target analytes/impurities for further analysis (biological studies, NMR, XRD, EM) Reference library for isolated substances
Downstream purification workflows	<ul style="list-style-type: none"> Quality control analysis to check the efficiency of your large-scale purification process 	<ul style="list-style-type: none"> Concentration and formulation for oligonucleotides Reference substance library of lot numbers Pooling for isolating and testing unknowns/outliers
Key applications	<ul style="list-style-type: none"> Biologics & formulations Excipients & surfactants Library screening for drug discovery Lipidomics 	<ul style="list-style-type: none"> Manufacturing quality control for raw materials & finished goods Metabolomics Multi-chiral drugs Natural products Peptide fingerprinting Proteomics Surfactants & polymers

	Vanquish Online 2D-LC systems	Vanquish Analytical Purification LC systems
Supporting literature	<ul style="list-style-type: none"> Complementary Dual LC as a convenient alternative to multiple heart-cut 2D-LC for samples of medium complexity Simultaneous determination of vitamin A, D and four vitamin E isomers in infant formula by offline solid phase extraction and online two-dimensional liquid chromatography Intact mass analysis of monoclonal antibody charge variants by multi heart-cut 2D-LC/MS coupling ion-exchange and reversed-phase chromatography Flexible HPLC instrument setups for double usage as one heart-cut-2D-LC system or two independent 1D-LC systems Complementary analysis in a biopharmaceutical research laboratory with a 2D-LC-MS instrument for flexible operation 	<ul style="list-style-type: none"> Semi-preparative reversed-phase liquid chromatographic purification of oligonucleotides Principles of fraction collection using the Vanquish HPLC and UHPLC systems Separate, purify, go! Separation power paired with precise fractionation with the Vanquish Analytical Purification LC system

Vanquish Online 2D-LC Systems

Improve the analysis of complex samples or simplify the separation of difficult-to-resolve analytes with Thermo Scientific Vanquish Online 2D-LC Systems. Select from one of the four configurations focused on online SPE or various heart-cutting, two-dimensional liquid chromatography (LC-LC) workflows. These robust, easy-to-use modular instruments offer versatile configurations to improve your confidence in peak identify with great performance and maximum application flexibility.

[Learn more](#)



Vanquish Analytical Purification LC Systems

Central to our Thermo Scientific Vanquish Analytical Purification LC Systems is the fully integrated, high-performance Thermo Scientific Vanquish Fraction Collector (VFC), which allows you to achieve pinpoint purification by fractionation with precision. The Vanquish Analytical Purification LC Systems support match the separation power of the LC systems with compelling fractionation for high-purity and high-yield compound collection. Built with Thermo Scientific Vanquish HPLC and UHPLC system components, they deliver unrivaled performance, robustness, and user-friendliness.

[Learn more](#)



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