



## Immunosuppressive Drugs in Whole Blood LC-MS/MS Analysis Kit

Tacrolimus, sirolimus, everolimus and Cyclosporine A are immunosuppressive drugs used in organ transplantation in order to prevent the rejection of transplanted organs and tissues. In addition, they are used in the therapy of autoimmune diseases. Due to high pharmacokinetic variability, narrow therapeutic indexes and many potential drug-drug interactions, close monitoring of blood concentrations is required to prevent rejection and minimize toxicity. The quantitative determination of these immunosuppressants should be performed only with LC-MS/MS, because the immunological tests vary considerably in terms of selectivity and specificity, and sometimes also detect inactive metabolites.

### Highlights of the Analysis Kit

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Simultaneous measurement the concentrations of 4 immunosuppressive drugs



Total run time is 7.5 min.



Simple protein precipitation and shoot sample preparation without SPE



Each drug is supported by a dedicated internal standard

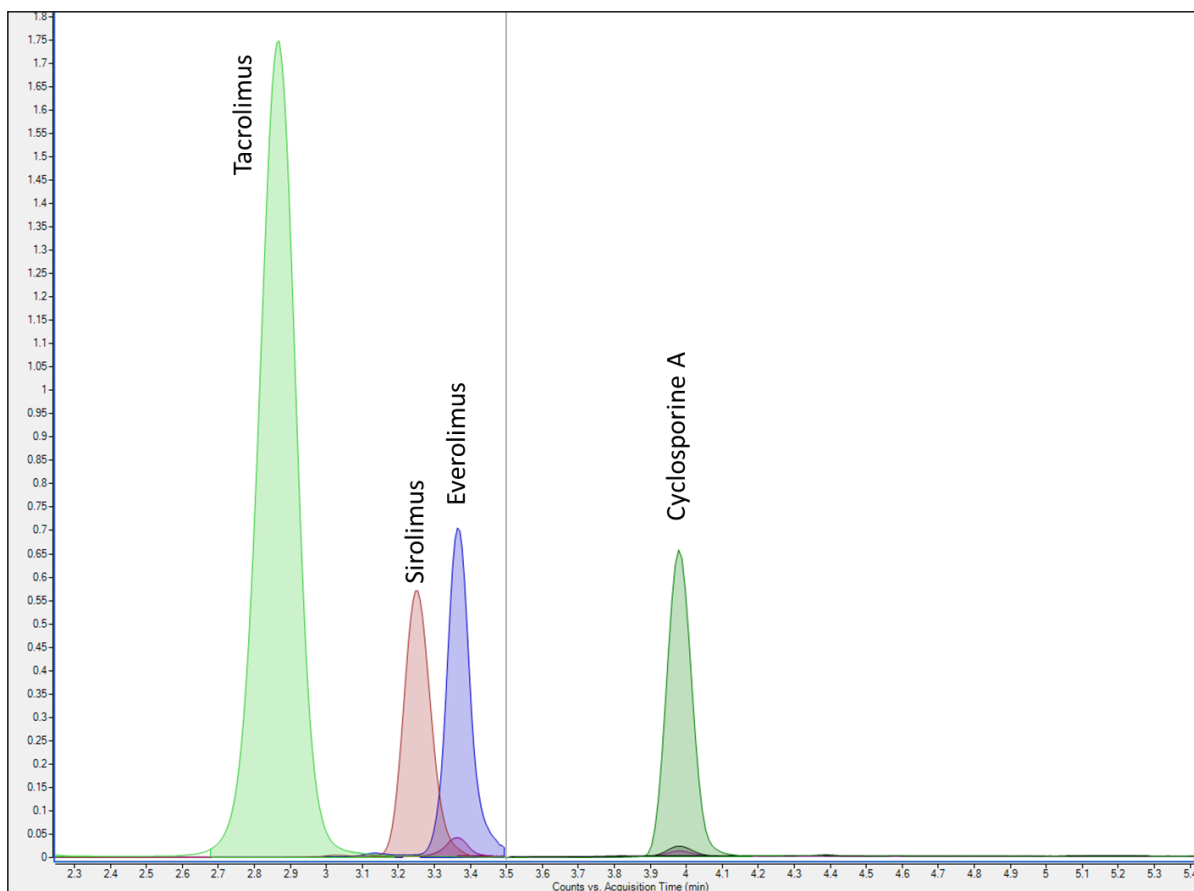


Long life span of HPLC column

Parameters			
Tacrolimus	Everolimus	Sirolimus	Cyclosporine A
Sample Type			
Whole blood			

### Sample Preparation

1	Pipette 250 $\mu$ L of whole blood sample into a microcentrifuge tube
2	Add 20 $\mu$ L of internal standard solution and vortex for 5 sec.
3	Add 480 $\mu$ L of Reagent-1, vortex for 5 sec. Then, centrifuge at 4000 rpm for 5 min.
4	Decant the clear supernatant into HPLC vial prior to injection



Extracted ion chromatogram of immunosuppressive drugs

## Method Performance

All validation results were obtained using Agilent 6465 QQQ (Ultivo) systems

Analytes	LOQ ( $\mu\text{g/mL}$ )	Linearity ( $\mu\text{g/mL}$ )	Recovery (%)	Repeatability (%CV)
Cyclosporine A	0.05	0.05 – 1303.0	102	4.50
Everolimus	0.71	0.71 – 47.8	100	2.60
Sirolimus	0.19	0.19 – 48.0	99	1.70
Tacrolimus	0.02	0.02 – 45.1	100	1.00



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