

ANTIPSYCHOTICS IN PLASMA BY LC/MS

Code LC83010





EUREKA S.R.L. LAB DIVISION
Via M. D'Antona 28
60033 Chiaravalle (AN) - Italy
Tel +39 071 7450790
eureka-support@sentinel.it
www.eurekakit.com



This product fulfills all the requirements of Directive 98/79/EC on in vitro diagnostic medical devices (IVD).

The declaration of conformity (CE) is available upon request.

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

INTRODUCTION

Antipsychotics (or neuroleptics) are drugs that act on the psyche, used in the therapy of psychoses, especially delusional and hallucinatory ones. Antipsychotics are also used, if strictly necessary, in hallucinatory disorders and neuromotor agitation states of non-psychotic diseases, such as dementia and some temporal brain tumors, or some leukodystrophies. Neuroleptic drugs are the cornerstone of psychosis therapy, which, being diseases with an organic brain substrate, require specific antagonists of metabolic and interneuronal alterations in the central nervous system. A characteristic of psychosis therapy is that in most cases it should not be interrupted, especially during intercritical periods. In spite of their sedative effects, neuroleptics are not administered to sedate the patient or to make him sleep, but to control disorders of behavior and ideation, while reducing agitation and aggressiveness. Patients develop tolerance to the sedative effects of neuroleptics over time.

Mechanisms of action of typical neuroleptics.

The pharmacological effects of neuroleptics take place at all levels of the nervous system, using the dopaminergic pathways for the most part. They antagonize the neurotransmitter action of dopamine both in the cerebral cortex and in the limbic cortex and in the ganglia of the encephalic base. Since there are disturbances of higher functions and cognitive processes in psychosis, antipsychotics interact with dopamine in the fibers directed to deep prefrontal and temporal regions. They do not develop tolerance, but can reduce the threshold for a convulsive attack in the cortex. At the level of the basal ganglia, neuroleptics induce functional alterations for dopamine antagonism; the initial effect seems to be related to the blockade of dopamine D2 receptors, followed by a transitory activation with greater dopamine release, and finally by a reduction in neuronal activity.

Side effects of typical neuroleptics.

Besides the lowering of the epileptogenic threshold, which rarely causes epilepsy during their chronic administration, the side effects present in almost all cases are the extrapyramidal symptoms, very similar to those of Parkinson's disease: rigidity, amimia, tremors, akathisia. They are linked to the action on the base ganglia. Toxic symptoms are rare, linked to the concomitant use of alcohol. They can prolong the QT interval of the electrocardiogram. Many neuroleptics cause weight gain, linked both to hyperphagia and insulin resistance.

Their plasma dosage therefore plays an important role.

Treccani Medical Dictionary Source

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

TECHNICAL FEATURES

SENSITIVITY (LLOD):	Clozapine Norclozapine Olanzapine Risperidone Quetiapine Ziprasidone Haloperidol Aripiprazole Fluphenazine Paliperidone	0,1 ng/ml 0,1 ng/ml 0,1 ng/ml 0,1 ng/ml 0,1 ng/ml 0,1 ng/ml 0,1 ng/ml 5 ng/ml 0,1 ng/ml 0,1 ng/ml
MINIMUM CONCENTRATION ANALIZABLE (LLOQ):	Clozapine Norclozapine Olanzapine Risperidone Quetiapine Ziprasidone Haloperidol Aripiprazole Fluphenazine Paliperidone	0,5 ng/ml 0,5 ng/ml 0,5 ng/ml 0,5 ng/ml 0,5 ng/ml 0,5 ng/ml 0,5 ng/ml 25 ng/ml 0,5 ng/ml 0,5 ng/ml
LINEARITY:	Clozapine Norclozapine Olanzapine Risperidone Quetiapine Ziprasidone Haloperidol Aripiprazole Fluphenazine Paliperidone	0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml 25 – 5.000 ng/ml 0,5 – 5.000 ng/ml 0,5 – 5.000 ng/ml

Drugs and metabolites	Reference therapeutic ranges (ng/mL)	Alert level (ng/mL)
Clozapine	350-600	1000
Norclozapine	100-600	N.D.
Olanzapine	20-80	100
Risperidone + 9-Hydroxy-Risperidone	20-60	120
Quetiapine	100-500	1000
Ziprasidone	50-200	400
Haloperidol	1-10	15
Aripiprazole	100-350	1000
Fluphenazine	1-10	15
Paliperidone	20-60	120

Bibliography Index

1-(*) Consensus Guidelines for Therapeutic Drug Monitoring in Neuropsychopharmacology: Update 2017

<u>Accuracy intra serie (relative error %)</u> <u>Clozapine:</u>	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	3,55%	4,56%	
<u>Accuracy inter serie (relative error %)</u> <u>Clozapine:</u>	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	5,51%	5,30%	
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Clozapine:</u>	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	5,54%	1,72%	3,96%
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Clozapine:</u>	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	10,03%	7,04%	10,8%
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9932 ± 0,0004 Clozapine		

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

<u>Accuracy intra serie (relative error %)</u> <u>Norclozapine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>250 ng/ml</td><td>1000 ng/ml</td></tr><tr><td>4,39%</td><td>3,85%</td></tr></table>	Ci	Cs	250 ng/ml	1000 ng/ml	4,39%	3,85%			
Ci	Cs									
250 ng/ml	1000 ng/ml									
4,39%	3,85%									
<u>Accuracy inter serie (relative error %)</u> <u>Norclozapine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>250 ng/ml</td><td>1000 ng/ml</td></tr><tr><td>9,64%</td><td>6,54%</td></tr></table>	Ci	Cs	250 ng/ml	1000 ng/ml	9,64%	6,54%			
Ci	Cs									
250 ng/ml	1000 ng/ml									
9,64%	6,54%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Norclozapine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>500 ng/ml</td><td>1500 ng/ml</td></tr><tr><td>5,99%</td><td>1,06%</td><td>3,67%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	500 ng/ml	1500 ng/ml	5,99%	1,06%	3,67%
C LLOQ	Cm	CUP								
0,5 ng/ml	500 ng/ml	1500 ng/ml								
5,99%	1,06%	3,67%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Norclozapine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>500 ng/ml</td><td>1500 ng/ml</td></tr><tr><td>7,06%</td><td>8,15%</td><td>8,65%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	500 ng/ml	1500 ng/ml	7,06%	8,15%	8,65%
C LLOQ	Cm	CUP								
0,5 ng/ml	500 ng/ml	1500 ng/ml								
7,06%	8,15%	8,65%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9915 ± 0,0018 Norclozapine									
<u>Accuracy intra serie (relative error %)</u> <u>Olanzapine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>7,58%</td><td>3,55%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	7,58%	3,55%			
Ci	Cs									
5 ng/ml	50 ng/ml									
7,58%	3,55%									
<u>Accuracy inter serie (relative error %)</u> <u>Olanzapine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>11,85%</td><td>6,36%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	11,85%	6,36%			
Ci	Cs									
5 ng/ml	50 ng/ml									
11,85%	6,36%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Olanzapine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>3,88%</td><td>6,47%</td><td>1,77%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	3,88%	6,47%	1,77%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
3,88%	6,47%	1,77%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Olanzapine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>5,60%</td><td>10,43%</td><td>7,85%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	5,60%	10,43%	7,85%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
5,60%	10,43%	7,85%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9964 ± 0,0023 Olanzapine									
<u>Accuracy intra serie (relative error %)</u> <u>Risperidone:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>8,19%</td><td>0,86%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	8,19%	0,86%			
Ci	Cs									
5 ng/ml	50 ng/ml									
8,19%	0,86%									
<u>Accuracy inter serie (relative error %)</u> <u>Risperidone:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>8,95%</td><td>8,15%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	8,95%	8,15%			
Ci	Cs									
5 ng/ml	50 ng/ml									
8,95%	8,15%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Risperidone:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>4,28%</td><td>3,58%</td><td>3,44%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	4,28%	3,58%	3,44%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
4,28%	3,58%	3,44%								

<u>Reproducibility inter serie (coefficient of variation %)</u> Risperidone:	C LLOQ	Cm	CUP
	0,5 ng/ml	25 ng/ml	150 ng/ml
	12,11%	8,18%	13,45%
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9965 ± 0,0026 Risperidone		
<u>Accuracy intra serie (relative error %)</u> Quetiapine:	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	5,53%	2,05%	
<u>Accuracy inter serie (relative error %)</u> Quetiapine:	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	6,95%	3,45%	
<u>Reproducibility intra serie (coefficient of variation %)</u> Quetiapine:	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	3,88%	1,71%	2,00%
<u>Reproducibility inter serie (coefficient of variation %)</u> Quetiapine:	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	3,06%	5,77%	10,84%
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9948 ± 0,0018 Quetiapine		
<u>Accuracy intra serie (relative error %)</u> Ziprasidone:	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	7,88%	3,99%	
<u>Accuracy inter serie (relative error %)</u> Ziprasidone:	Ci	Cs	
	250 ng/ml	1000 ng/ml	
	9,93%	4,40%	
<u>Reproducibility intra serie (coefficient of variation %)</u> Ziprasidone:	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	6,02%	7,36%	1,84%
<u>Reproducibility inter serie (coefficient of variation %)</u> Ziprasidone:	C LLOQ	Cm	CUP
	0,5 ng/ml	500 ng/ml	1500 ng/ml
	12,41%	9,32%	14,13%
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9926 ± 0,0027 Ziprasidone		
<u>Accuracy intra serie (relative error %)</u> Haloperidol:	Ci	Cs	
	5 ng/ml	50 ng/ml	
	8,70%	8,70%	

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

<u>Accuracy inter serie (relative error %)</u> <u>Haloperidol:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>14,76%</td><td>11,07%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	14,76%	11,07%			
Ci	Cs									
5 ng/ml	50 ng/ml									
14,76%	11,07%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Haloperidol:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>2,39%</td><td>9,52%</td><td>2,63%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	2,39%	9,52%	2,63%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
2,39%	9,52%	2,63%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Haloperidol:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>6,50%</td><td>11,41%</td><td>6,94%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	6,50%	11,41%	6,94%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
6,50%	11,41%	6,94%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9938 ± 0,0026 Haloperidol									
<u>Accuracy intra serie (relative error %)</u> <u>Aripiprazole:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>250 ng/ml</td><td>1000 ng/ml</td></tr><tr><td>10,75%</td><td>0,60%</td></tr></table>	Ci	Cs	250 ng/ml	1000 ng/ml	10,75%	0,60%			
Ci	Cs									
250 ng/ml	1000 ng/ml									
10,75%	0,60%									
<u>Accuracy inter serie (relative error %)</u> <u>Aripiprazole:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>250 ng/ml</td><td>1000 ng/ml</td></tr><tr><td>11,60%</td><td>1,66%</td></tr></table>	Ci	Cs	250 ng/ml	1000 ng/ml	11,60%	1,66%			
Ci	Cs									
250 ng/ml	1000 ng/ml									
11,60%	1,66%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Aripiprazole:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>25 ng/ml</td><td>500 ng/ml</td><td>1500 ng/ml</td></tr><tr><td>6,07%</td><td>6,77%</td><td>3,14%</td></tr></table>	C LLOQ	Cm	CUP	25 ng/ml	500 ng/ml	1500 ng/ml	6,07%	6,77%	3,14%
C LLOQ	Cm	CUP								
25 ng/ml	500 ng/ml	1500 ng/ml								
6,07%	6,77%	3,14%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Aripiprazole:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>25 ng/ml</td><td>500 ng/ml</td><td>1500 ng/ml</td></tr><tr><td>10,19%</td><td>8,87%</td><td>9,49%</td></tr></table>	C LLOQ	Cm	CUP	25 ng/ml	500 ng/ml	1500 ng/ml	10,19%	8,87%	9,49%
C LLOQ	Cm	CUP								
25 ng/ml	500 ng/ml	1500 ng/ml								
10,19%	8,87%	9,49%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9927 ± 0,0013 Aripiprazole									
<u>Accuracy intra serie (relative error %)</u> <u>Fluphenazine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>10,05%</td><td>2,59%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	10,05%	2,59%			
Ci	Cs									
5 ng/ml	50 ng/ml									
10,05%	2,59%									
<u>Accuracy inter serie (relative error %)</u> <u>Fluphenazine:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>10,97%</td><td>3,97%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	10,97%	3,97%			
Ci	Cs									
5 ng/ml	50 ng/ml									
10,97%	3,97%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Fluphenazine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>8,92%</td><td>8,56%</td><td>2,39%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	8,92%	8,56%	2,39%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
8,92%	8,56%	2,39%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Fluphenazine:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>13,41%</td><td>10,93%</td><td>5,30%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	13,41%	10,93%	5,30%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
13,41%	10,93%	5,30%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9969 ± 0,0013 Fluphenazine									

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

<u>Accuracy intra serie (relative error %)</u> <u>Paliperidone:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>3,98%</td><td>1,66%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	3,98%	1,66%			
Ci	Cs									
5 ng/ml	50 ng/ml									
3,98%	1,66%									
<u>Accuracy inter serie (relative error %)</u> <u>Paliperidone:</u>	<table><tr><td>Ci</td><td>Cs</td></tr><tr><td>5 ng/ml</td><td>50 ng/ml</td></tr><tr><td>10,53%</td><td>3,45%</td></tr></table>	Ci	Cs	5 ng/ml	50 ng/ml	10,53%	3,45%			
Ci	Cs									
5 ng/ml	50 ng/ml									
10,53%	3,45%									
<u>Reproducibility intra serie (coefficient of variation %)</u> <u>Paliperidone:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>1,95%</td><td>5,23%</td><td>2,55%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	1,95%	5,23%	2,55%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
1,95%	5,23%	2,55%								
<u>Reproducibility inter serie (coefficient of variation %)</u> <u>Paliperidone:</u>	<table><tr><td>C LLOQ</td><td>Cm</td><td>CUP</td></tr><tr><td>0,5 ng/ml</td><td>25 ng/ml</td><td>150 ng/ml</td></tr><tr><td>9,37%</td><td>15,17%</td><td>6,34%</td></tr></table>	C LLOQ	Cm	CUP	0,5 ng/ml	25 ng/ml	150 ng/ml	9,37%	15,17%	6,34%
C LLOQ	Cm	CUP								
0,5 ng/ml	25 ng/ml	150 ng/ml								
9,37%	15,17%	6,34%								
<u>Coefficient of Correlation R2 + Dev Std:</u>	0,9962 ± 0,0032 Paliperidone									

COMPONENTS OF THE KIT (100 TESTS)

Reagent A – Deproteinization Solution + Internal Standards	1 x 20 ml	Store at -20 °C
Reagent B – Diluting Solution	1 x 100 ml	
Calibrator in plasma – Level 0	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 1	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 2	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 3	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 4	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 5	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Calibrator in plasma – Level 6	1 x 1 ml	Code LC83016 (Packed separately – see data sheets)
Reagent M1 – Mobile Phase M1	1 x 500 ml	
Reagent M2 – Mobile Phase M2	2 x 500 ml	

All reagents are ready to use and stable 3 years at Room Temperature, except Reagent A which should be stored at -20 °C. The storage procedure for the Lyophilic Calibration Standard is described in the dedicated data sheet.

N° 003	Antipsychotics in plasma by LC/MS	09/2024
---------------	--	----------------

ACCESSORIES AND CONSUMABLES

CODE	DESCRIPTION	PACKAGING
LC83016	Calibrator in plasma for Antipsychotics	7 x 2 x 1 ml
LC83019	Control in plasma for Antipsychotics - Levels 1, 2 and 3	3 x 5 x 1 ml
SK83010	Starter kit for Antipsychotics in plasma	1 Pc
Z699675902	Poroshell 120 EC-C18 (50 x 2,1 mm, 1,9 µm) Analytical Column	1 Pc

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

MINIMUM INSTRUMENTAL EQUIPMENT REQUIRED

LC-MS/MS Triple Quadrupole
MRM mode, ESI positive

OPTIONAL EQUIPMENT

Autosampler
Operational Computer

MODE OF WHOLE BLOOD COLLECTION

Take 3 ml of venous blood in a test tube without gel for serum or with Heparin as anticoagulant for plasma.
Centrifuge at 4000 rpm for 5 minutes.
Separate the serum and store at - 20 °C. Stable 4 weeks.

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

ANALYTICAL PROCEDURE

STEP 1

Dispense in an eppendorf:

- 50 µl of **Calibrator (C0-C6)/Controls/Samples**
- 200 µl of **Reagent A – Deproteinization Solution + Internal Standards**

Vortex for 30 sec.

Centrifuge at 14.000 rpm for 10 minutes

STEP 2

Dispense in a vial:

- 100 µl of **supernatant**
- 900 µl of **Reagent B – Diluting Solution**

Vortex for 5 sec.

N.B.: at this step, the sample is stable 2 days at 2-8 °C

INJECTION

- Inject 2-10 µl of solution in HPLC (according to analytical sensitivity)

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

ANTIPSYCHOTICS IN PLASMA by LC/MS - Warnings

COLUMN CONDITIONING

Install new analytical column Poroshell EC-C18 (50 x 2.1 mm, 1.9 µm) thermostated at 40°C. Disconnect the detector and flux for 10 minutes a solution of Mobile Phase M1 : Mobile Phase M2 (20 : 80 v/v) set flow at 500 µl/minute and the a solution of Mobile Phase M1 : Mobile Phase M2 (90 : 10 v/v) set flow at 500 µl/minute. **Don't recycle the washing solutions.** Condizionate the column with a solution of H₂O : Mobile Phase M2 (95 : 5 v/v) set flow at 400 µl/minute for 15 minutes.

It is NOT possible to make analysis at recycling phase.

If room temperature is > 20 °C store the Mobile Phase at 2-8 °C between an analytical session and another.

COLUMN CLEANING

Disconnect the detector. Flux a solution of Mobile Phase M1 : Mobile Phase M2 (30 : 70 v/v) for 10 minutes set flow at 500 µl/minute. The column must be stored in a solution of H₂O : Mobile Phase M2 (5 : 95 v/v).

INJECTION NEEDLE WASHING

Wash the syringe with Methanol.

ESI+ PARAMETERS OPTIMIZED ON XEVO TQ-S micro

Capillary	3,50 kV
Desolvation Temperature	600 °C
Desolvation Gas	800 L/hour

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

FRAGMENTATIONS (optimized on SU XEVO TQ-S micro)

Analyte	Q1	Q3	IS for calibration
Clozapine	327.3	84.0	Clozapine-D4
Norclozapine	313.3	192.1	Clozapine-D4
Olanzapine	313.2	256.1	Olanzapine-D8
Risperidone	411.4	191.2	Risperidone-D4
Quetiapine	384.3	253.1	Risperidone-D4
Ziprasidone	413.2	194.0	Risperidone-D4
Haloperidol	376.3	123.0	Risperidone-D4
Aripiprazole	449.3	98.2	Risperidone-D4
Fluphenazine	438.2	171.0	Risperidone-D4
Paliperidone	427.3	207.1	Risperidone-D4
Olanzapine-D8	321.3	260.9	/
Clozapine-D4	331.2	272.2	/
Risperidone-D4	415.4	195.1	/

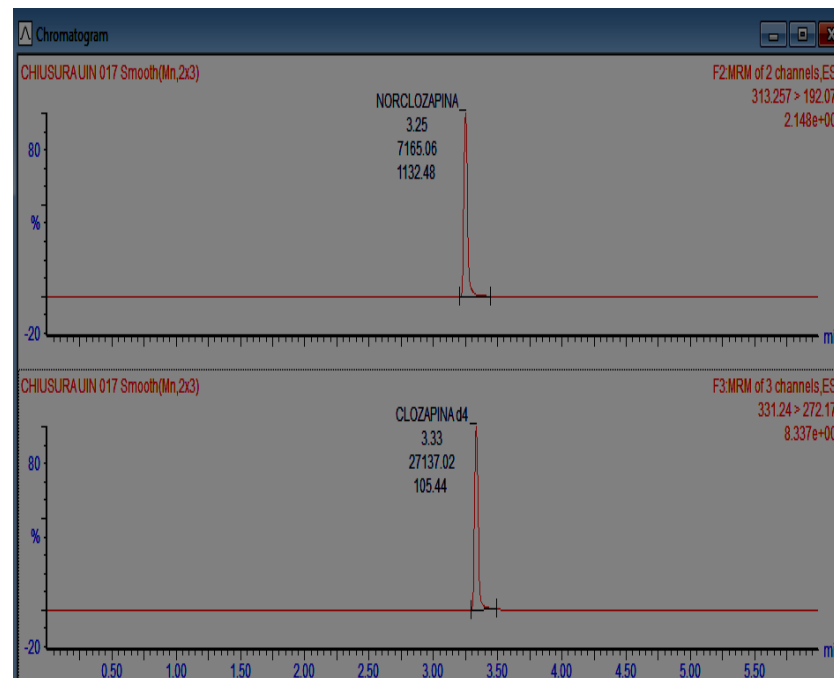
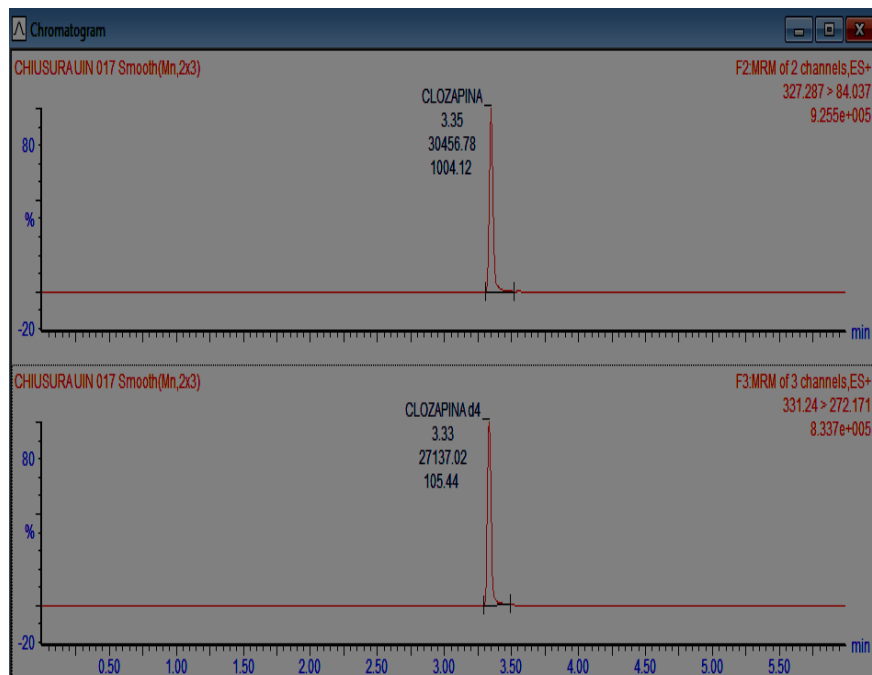
GRADIENT SET

Time (min)	% M1 (PUMP A)	% M2 (PUMP B)	FLOW (µl/min)
0	98	2	400
0.5	98	2	400
4.0	25	75	400
4.01	2	98	400
6.0	2	98	400
6.01	98	2	400
9.0	98	2	400

N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

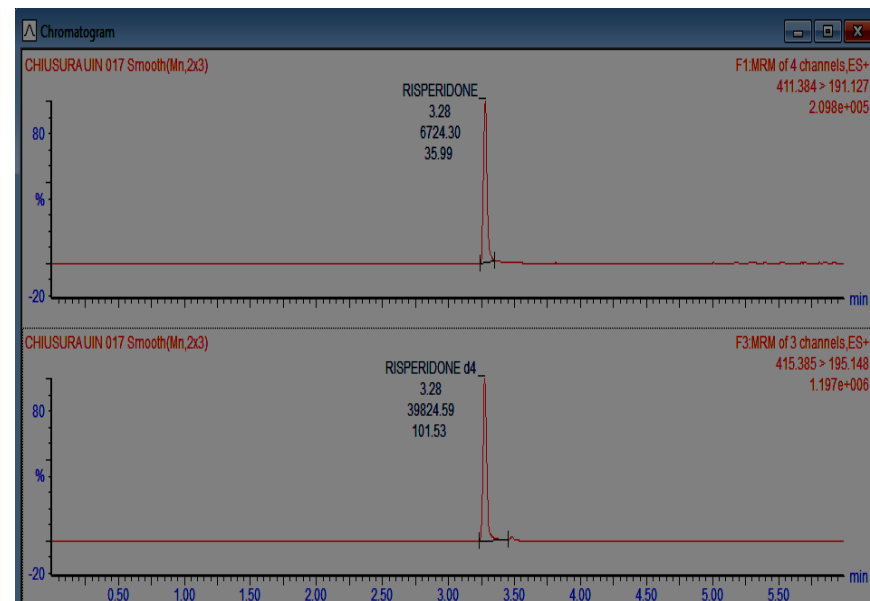
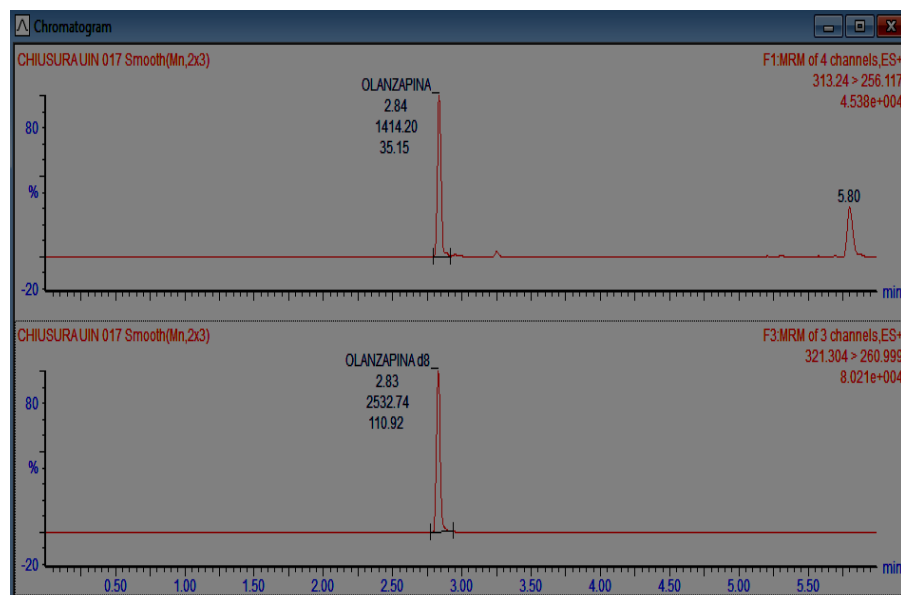
ANTIPSYCHOTICS IN PLASMA BY LC/MS

(Reference Chromatograms)



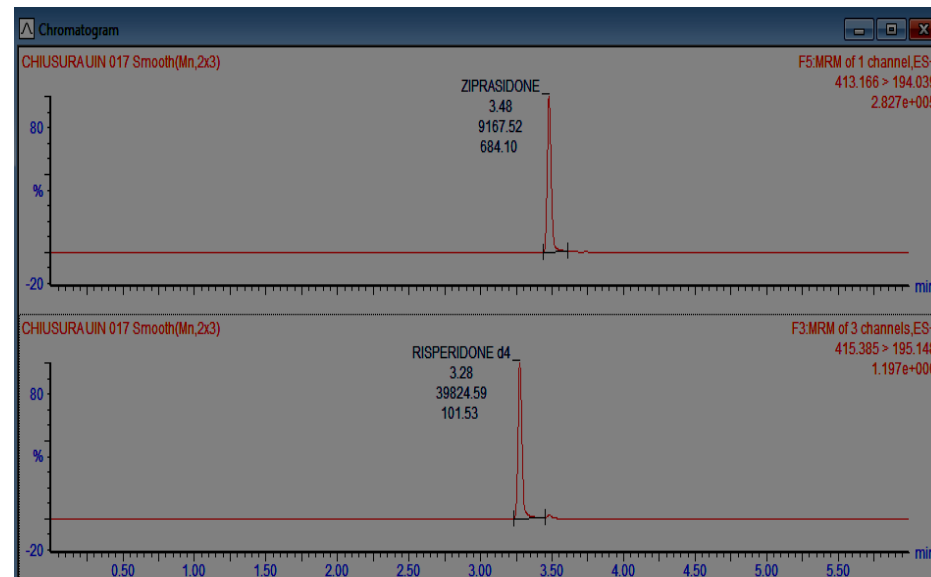
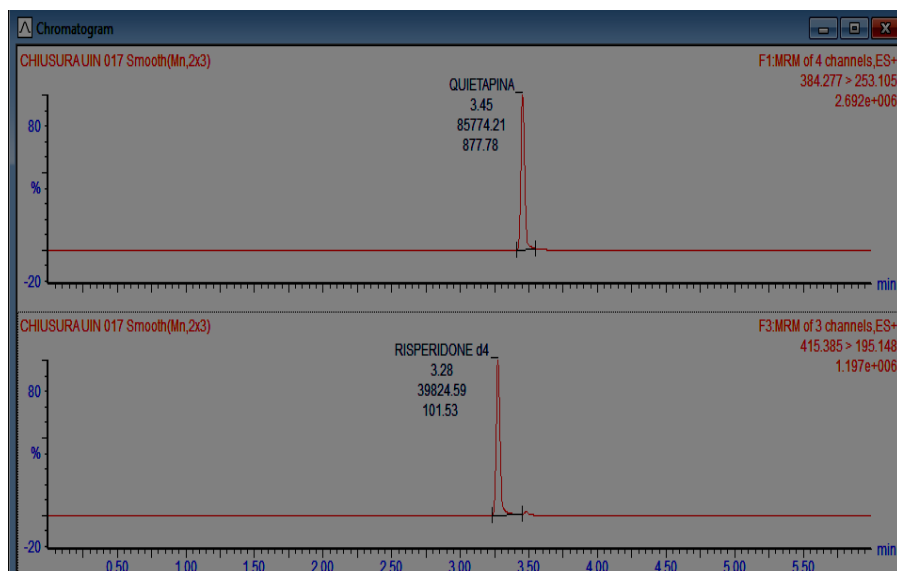
ANTIPSYCHOTICS IN PLASMA BY LC/MS

(Reference Chromatograms)



ANTIPSYCHOTICS IN PLASMA BY LC/MS

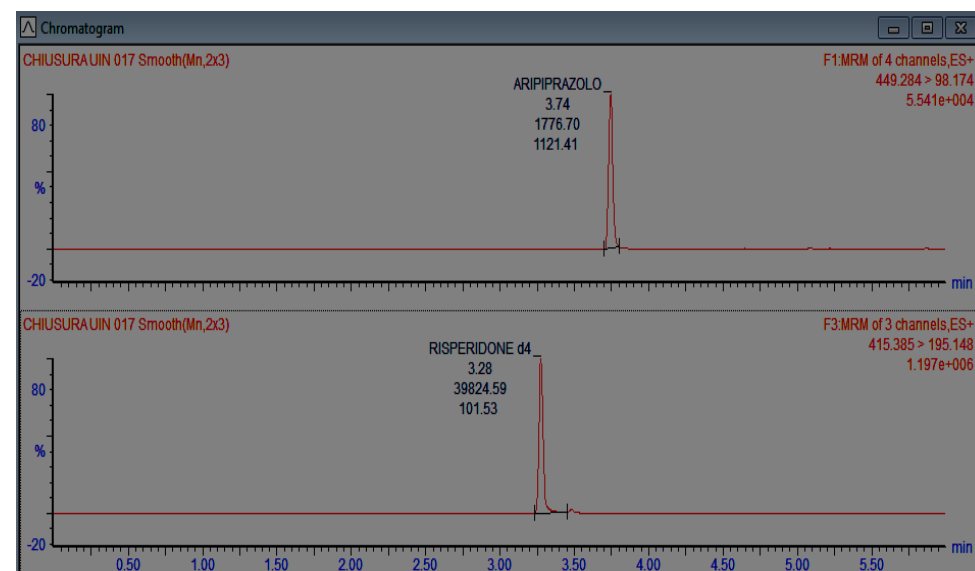
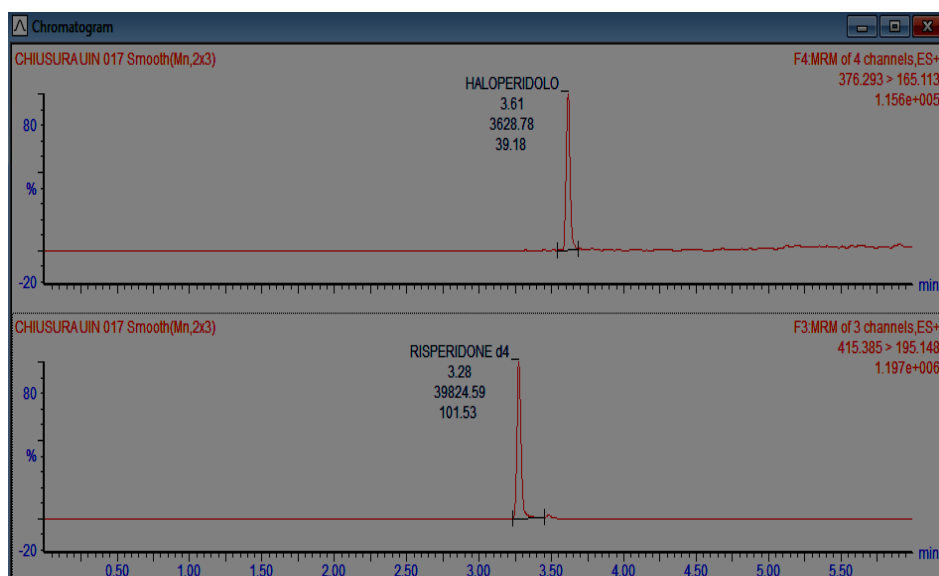
(Reference Chromatograms)



N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

ANTIPSYCHOTICS IN PLASMA BY LC/MS

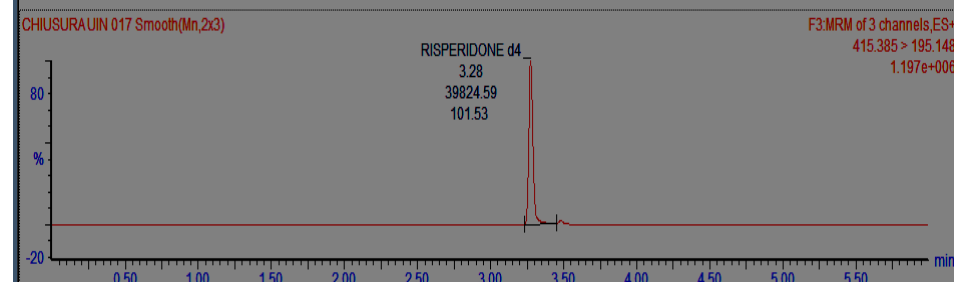
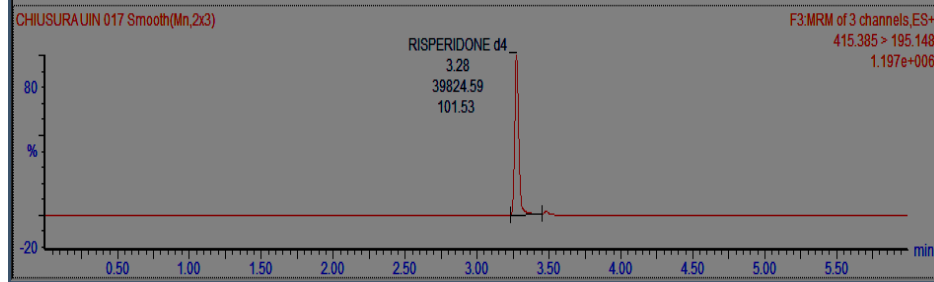
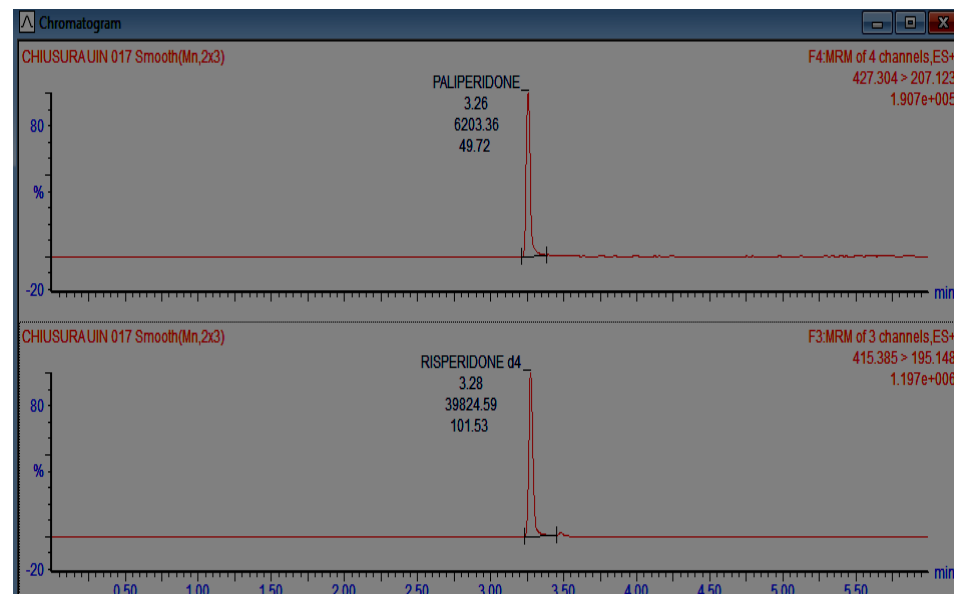
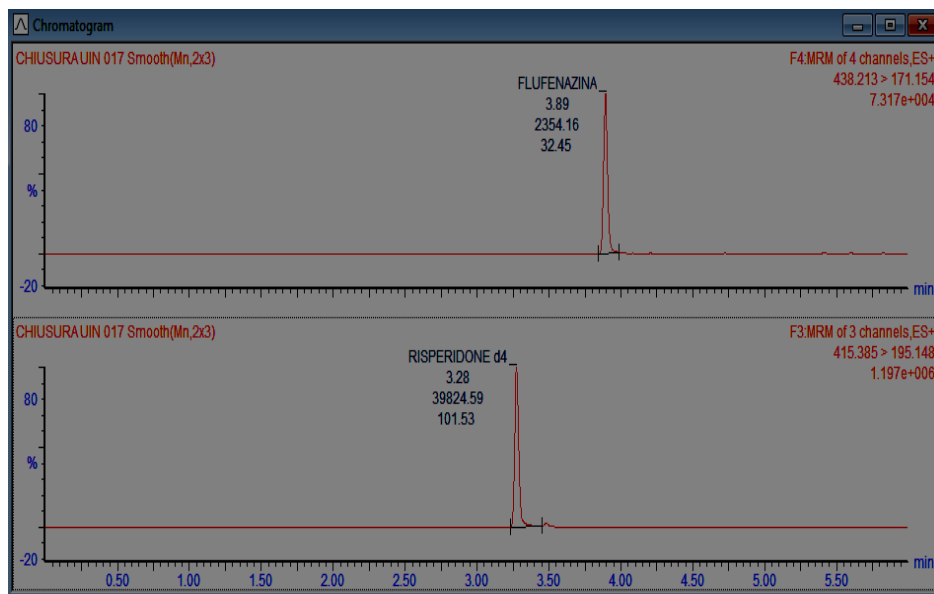
(Reference Chromatograms)



N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------

ANTIPSYCHOTICS IN PLASMA BY LC/MS

(Reference Chromatograms)



N° 003	Antipsychotics in plasma by LC/MS	09/2024
--------	-----------------------------------	---------



eureka kit

Produced by



EUREKA S.R.L. LAB DIVISION
Via M. D'Antona 28
60033 Chiaravalle (AN) - Italy
Tel +39 071 7450790
eureka-support@sentinel.it
www.eurekakit.com