Supplementary Figures 1, 2, 3 and 4
Supplementary Tables 1a,b,c, 2, 3, 4 and 5

A heritable profile of miRNAs in autistic patients and mouse models.

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Supplementary Table 1a EVRENA Clinics

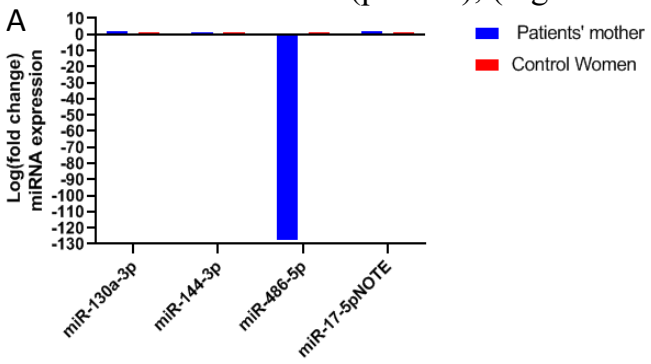
Patients	Gender	Age	Diagnosis	Clinical Findings	ADSI	Family History	Consanguinity
14-101	Female	5	Autism	ID, Epilepsy		None	Positive
14-102	Female	3	Autism	ID, Epilepsy		None	Positive
15-101	Male	9	Autism	ID		Epilepsy, Deafness	Positive
15-102	Male	9	Autism	ID		Epilepsy, Deafness	Positive
16-101	Female	9	Autism	ID		Autism	Positive
16-102	Male	9	Autism	ID		Autism	Positive
16-103	Male	5	Autism	ID		Autism	Positive
17-101	Female	8	Autism	ID		None	Positive
17-102	Female	12	Autism	ID		None	Positive
19-101	Male	5	Autism	ID		MR	Positive
20-101	Male	2	Autism	ID		None	Positive
21-101	Male	12	Autism	ID		Schizophrenia	Negative
22-101	Female	11	Autism	ID		None	Negative
24-101	Male	4	Autism	ID		None	Negative
28-101	Female	13	Autism	ID, Epilepsy		None	Positive
29-101	Male	6	Autism	ID, Epilepsy		None	Positive
31-101	Female	6	Autism	ADHD		Autism	Positive
32-101	Male	3	Autism	ID, Epilepsy	Suspicious	Deafness	Negative
37-101	Male	10	Autism			None	Positive
41-101	Male	5	Autism	ID, ADHD		None	Negative
H10-103	Male	3	Autism	ID	Abnormal	Acromegaly, Deafness	Negative
H10-102	Male	3	Autism	ID	Abnormal	Acromegaly, Deafness	Negative
H13-101	Female	3	Autism	ID		Deafness	Negative
H33-102	Female	3	Autism	ID		Schizophrenia, Asperger	Negative
H34-101	Male	9	Autism			Schizophrenia	Negative
H36-101	Male	9	Autism	ID	Abnormal	None	Positive
H37-101	Male	4	Autism	ID	Abnormal	None	Positive
18-101	Male	6	Atypic Autism		Abnormal	Epilepsy, MS	Negative
25-101	Male	7	Atypic Autism	ADHD	Suspicious	MR	Negative
26-101	Female	3	Atypic Autism			None	Negative
27-101	Male	7	Atypic Autism	ID, ADHD	Suspicious	None	Negative
30-101	Male	7	Atypic Autism	ID	Abnormal	None	Positive
34-101	Male	5	Atypic Autism	ID		None	Negative
35-101	Male	9	Atypic Autism	ID, ADHD		None	Positive
36-101	Female	7	Atypic Autism			None	Negative
38-101	Female	9	Atypic Autism			None	Negative
40-101	Male	5	Atypic Autism	ID, ADHD		None	Negative
42-101	Male	5	Atypic Autism	ID, ADHD		None	Positive
H10-101	Male	6	Atypic Autism	ID, ADHD		Acromegaly, Deafness	Negative
H17-101	Male	6	Atypic Autism	ID, ADHD	Suspicious	None	Positive
H18-101	Male	6	Atypic Autism			None	Negative
H33-101	Male	3	Atypic Autism	ID	Abnormal	Schizophrenia, Asperger	Negative
H34-102	Female	9	Atypic Autism			Schizophrenia	Negative
H38-101	Male	3	Atypic Autism	ID	Abnormal	Autism	Negative
H39-101	Male	3	Atypic Autism	ID	Abnormal	Schizophrenia	Negative
				ID: intellectual disability	(Ankara Developmental Screening Inventory (ADSI)		

Supplementary Table 1c (Dataset A2) Six miRNAs in autism

		Gender	Age	miR-3613-3p	miR-150-5p	miR-126	miR-361	miR-499	miR-19a-3p		miR-19b-3p	
Patient Group	14-101	1	1	0,05450256	2,20436203	0,10378127	0,10378127	0,10378127	0,7198983			0,05181788
	14-102	1	3	0,05181828	1,70526975	0,0518357	0,0518357	0,0518357	0,5913257			0,05875116
	15-101	2	9	0,07035542	0,90876753	0,00557364	0,00557364	0,00557364	0,00863832			0,04543038
	15-102	2	9	0,02213766	0,60688611	0,00497597	0,00497597	0,00497597	0,16068304			0,07086687
	16-101	1	9	0,02592508	2,58633665	0,01627575	0,01627575	0,01627575	0,09274366			0,05225683
	16-102	1	9	0,07073669	2,11725889	0,01916427	0,01916427	0,01916427	0,01456201			0,11456655
	16-103	2	5	0,02215603	0,62743676	0,00352716	0,00352716	0,00352716	0,10052391			0,04699602
	17-101	1	8	0,1571635	4,13455503	0,00845692	0,00845692	0,00845692	0,19372731			0,06344724
	17-102	1	12	0,05436594	0,63823994	0,01760891	0,01760891	0,01760891	0,01767893			0,05867534
	18-101	1	6	0,05456251	1,17436748	0,01438989	0,01438989	0,01438989	0,171328			0,06972726
	19-101	2	5	0,02024567	0,61708861	0,00673725	0,00673725	0,00673725	0,2200476			0,07084169
	20-101	2	2	0,18922063	4,60697688	0,02579342	0,02579342	0,02579342	0,0763806			0,04332998
	21-101	1	12	0,09628218	0,15546025	0,03062328	0,03062328	0,03062328	0,12763369			0,06003071
	22-101	1	11	0,06841813	2,13877525	0,01387916	0,01387916	0,01387916	0,15066545			0,04463847
	24-101	2	4	0,0496596	1,98665573	0,01100886	0,01100886	0,01100886	0,14518914			0,06582181
	25-101	2	7	0,06352224	1,61832926	0,00878297	0,00878297	0,00878297	0,12165932			0,07274616
	26-101	1	3	0,05080977	1,22932937	0,00765318	0,00765318	0,00765318	0,07268218			0,11325855
	27-101	1	7	0,0484967	2,18882718	0,00531768	0,00531768	0,00531768	0,0920743			0,0438898
	28-101	1	13	0,04506378	2,16742512	0,01674802	0,01674802	0,01674802	0,15929362			0,15995816
	29-101	2	6	0,09123066	2,62295151	0,0070298	0,0070298	0,0070298	0,17358076			0,09915242
	30-101	1	7	0,08794838	1,97888008	0,01614455	0,01614455	0,01614455	0,13678356			0,09972916
	31-101	1	6	0,05293949	0,91837719	0,00765135	0,00765135	0,00765135	0,05742101			0,05675237
	32-101	2	3	0,15588872	4,34817605	0,00567969	0,00567969	0,00567969	0,15370959			0,06089581
	34-101	2	5	0,10918197	2,40437961	0,02171658	0,02171658	0,02171658	0,16446628			0,05804484
	35-101	2	9	0,07917531	1,88637604	0,02402375	0,02402375	0,02402375	0,08305384			0,04509123
	36-101	1	7	0,05451373	2,0872575	0,01193222	0,01193222	0,01193222	0,13734678			0,07247577
	37-101	2	10	0,10423985	2,85530059	0,00691214	0,00691214	0,00691214	0,11381774			0,04510773
	38-101	1	9	0,11242978	2,69477988	0,00645568	0,00645568	0,00645568	0,22097763			0,11660854
	40-101	2	5	0,05703726	0,8552294	0,02506042	0,02506042	0,02506042	0,15478286			0,05518055
	41-101	1	5	0,09734814	0,61829917	0,00830173	0,00830173	0,00830173	0,11065654			0,06238809
	42-101	1	5	0,10784972	4,02135533	0,00472728	0,00472728	0,00472728	0,2068886			0,09954918
	110-101	2	6	0,07183464	1,93421175	0,00350756	0,00350756	0,00350756	0,1076497			0,15964515
	110-102	2	3	0,16621391	1	0,06343448	0,06343448	0,06343448	0,07861382			0,01357066
	110-103	2	3	0,12676724	4,37973819	0,00814276	0,00814276	0,00814276	0,08502185			0,04531204
	113-101	1	3	0,07017103	1,96846275	0,00618775	0,00618775	0,00618775	0,15252761			0,06068147
	117-101	2	6	0,05162289	0,21013914	0,01354069	0,01354069	0,01354069	0,1451336			0,05559482
	118-101	2	6	0,03165364	0,3771845	0,04562889	0,04562889	0,04562889	0,15836168			0,07395515
	119-101	1	3	0,11191796	2,01561661	0,00561486	0,00561486	0,00561486	0,11367769			0,07595927
	133-102	1	3	0,03788721	0,25849868	0,05912833	0,05912833	0,05912833	0,11083659			0,03591006
	134-101	2	9	0,09029278	0,51290855	0,00985427	0,00985427	0,00985427	0,26107852			0,11862139
	134-102	1	9	0,06544555	1,42281726	0,01052233	0,01052233	0,01052233	0,20114483			0,09473678
	136-101	1	9	0,09111909	1,70511307	0,01461279	0,01461279	0,01461279	0,41211908			0,16837071
	137-101	2	4	0,06075513	1,12603846	0,01036059	0,01036059	0,01036059	0,15408263			0,15848397
	138-101	2	3	0,06891729	0,91630387	0,00862369	0,00862369	0,00862369	0,20263398			0,09188679
	139-101	2	3	0,02152883	0,4449249	0,01108614	0,01108614	0,01108614	0,27384518			0,1111823
Brother Group	17-103	1	16	0,09950185	2,7278856	0,00513333	0,00513333	0,00513333	0,30613472			0,13192877
	17-104	1	14	0,06445609	1,163651	0,00508093	0,00508093	0,00508093	0,30063483			0,10880005
	18-102	1	11	0,02764692	0,36830906	0,00803085	0,00803085	0,00803085	0,10016462			0,05763698
	18-103	1	4	0,11631305	2,60581231	0,01634452	0,01634452	0,01634452	0,15373981			0,05629171
	19-102	1	20	0,02019464	0,91803545	0,01838462	0,01838462	0,01838462	0,24050381			0,05359984
	19-103	2	15	0,13181873	4,33194563	0,01463068	0,01463068	0,01463068	0,17071104			0,0963249
	21-102	1	9	0,09053594	1,30746917	0,01203591	0,01203591	0,01203591	0,09654953			0,09673916
	21-103	2	17	0,02101565	0,91873047	0,01717562	0,01717562	0,01717562	0,14754664			0,05757758
	25-103	1	15	0,07533627	2,35886517	0,00384043	0,00384043	0,00384043	0,1014804			0,04312016
	25-104	1	10	0,09805495	1,77708059	0,01051186	0,01051186	0,01051186	0,26960852			0,11648529
	26-102	1	8	0,08294806	2,28849675	0,01952469	0,01952469	0,01952469	0,27201323			0,12904616
	27-102	1	14	0,0810809	2,16560709	0,0135466	0,0135466	0,0135466	0,16485114			0,08511939
	28-102	1	17	0,02907363	0,76743125	0,00242797	0,00242797	0,00242797	0,2145273			0,08703845
	28-103	2	15	0,06418854	1,64388631	0,01105525	0,01105525	0,01105525	0,15592068			0,06474882
	28-104	2	4	0,18643994	4,82670638	0,01637706	0,01637706	0,01637706	0,23668383			0,13662286
	29-102	1	10	0,1187668	4,01681648	0,01045124	0,01045124	0,01045124	0,13796229			0,0488351
	30-102	2	6	0,07187544	1,60800887	0,00348697	0,00348697	0,00348697	0,13497917			0,0544708
	31-102	1	13	0,09359738	2,23748852	0,01207203	0,01207203	0,01207203	0,12760744			0,05500023
	31-103	2	7	0,07663727	1,91775231	0,00879441	0,00879441	0,00879441	0,15126928			0,07405548
	31-104	2	7	0,05196469	0,9438376	0,00965156	0,00965156	0,00965156	0,11265274			0,04739738
	34-102	1	19	0,06680744	1,57309933	0,01759002	0,01759002	0,01759002	0,1123451			0,05578625
	34-103	2	14	0,02921613	1,09578849	0,01064172	0,01064172	0,01064172	0,24903355			0,12178313
	35-102	1	7	0,03582764	0,67295249	0,01887485	0,01887485	0,01887485	0,1126823			0,08582888
	36-102	1	3	0,02516496	0,55821432	0,02904687	0,02904687	0,02904687	0,12135707			0,0488351
	37-102	2	9	0,05740856	0,44235943	0,01815524	0,01815524	0,01815524	0,13677606			0,04881251
	37-103	1	7	0,02169391	0,79212008	0,00232422	0,00232422	0,00232422	0,19900596			0,09895752
	37-104	1	5	0,08743603	2,26826833	0,03429609	0,03429609	0,03429609	0,44585887			0,15782808
	37-105	1	5	0,05688055	1,44265047	0,01260586	0,01260586	0,01260586	0,21458018			0,09854824
	42-102	1	10	0,03818084	0,87543959	0,00901873	0,00901873	0,00901873	0,12407704			0,08809269
	113-102	2	14	0,09845538	1,19641419	0,00774369	0,00774369	0,00774369	0,15995802			0,09764762
	113-103	2	18	0,06078319	1,1147186	0,00516354	0,00516354	0,00516354	0,19729425			0,06675219
	118-102	2	5	0,08609	2,13778807	0,01382394	0,01382394	0,01382394	0,08362268			0,03283827
	136-102	2	17	0,06877062	1,28760983	0,0047208	0,0047208	0,0047208	0,0947208			0,10510048
Father Group	16-201	2	32	0,05057789	0,10370655	0,04027796	0,04027796	0,04027796	0,22086644			0,11256476
	15-201	1	33	0,03527133	0,47629837	0,00764364	0,00764364	0,00764364	0,19737893			0,11263721
	16-201	1	36	0,12183627	1,41147451	0,00977969	0,00977969	0,00977969	0,14828479			0,05808047
	17-201	2	31	0,0812018	1,29889253	0,01304039	0,01304039	0,01304039	0,07071929			0,03394013
	18-201	1	41	0,06007814	1,53949984	0,01078971	0,01078971	0,01078971	0,1474509			0,06614839
	19-201	1	46	0,19903267	3,11996925	0,01996804	0,01996804	0,01996804	0,2074587			0,08951037
	20-201	1	31	0,08968288	1,87963834	0,04602623	0,04602623	0,04602623	0,14188616			0,06366136
	21-201	1	38	0,06611353	1,42861682	0,0142391	0,0142391	0,0142391	0,22471351			0,01365496
	22-201	1	35	0,05475405	1,13986991	0,02055925	0,02055925	0,02055925	0,11571268			0,05838982
	24-201	1	30	0,10980819	1,72190068	0,02270548	0,02270548	0,02270548	0,15358671			0,06504153
	25-201	1	40	0,06834867	1,40224496	0,01063497	0,01063497	0,01063497	0,0908087			0,04948269
	26-201	2	31	0,10971305	2,70183354	0,01069581	0,01069581	0,01069581	0,19156091			0,08835623
	27-201	1	41	0,05798982	0,64166977	0,00795094	0,00795094	0,00795094	0,15250103			0,06161055
	28-201	2	38	0,03612358	0,70826505	0,02504832	0,02504832	0,02504832	0,1341027			0,04741499
	29-201	1	27	0,05917348	0,91673729	0,01466501	0,01466501	0,01466501	0,15168475			0,06472966
	30-201	1	30	0,06589311	1,24103359	0,0151593	0,0151593	0,0151593	0,11829421			0,03347546
	31-201	2	38	0,06570409	1,37735993	0,01093642	0,01093642	0,01093642	0,12559727			0,04537709
	32-201	2	30	0,27048865	6,24771527	0,0756265	0,0756265	0,0756265	0,20313373			0,04557791
	34-201	1	47	0,0747995	2,12798113	0,01542228	0,01542228	0,01542228	0,09753619			0,09518188
	35-201	2	40	0,06468277	1,19513838	0,05003705	0,05003705	0,05003705	0,35543371			0,11836779
	36-201	2	31	0,16844563	1,28840273	0,02017875	0,02017875	0,02017875	0,25751181			0,15863141
	37-201	2	31	0,17280713	1,76140801	0,02151332	0,02151332	0,02151332	0,6483788			0,21452582
	39-201	1	34	0,07481871	1,87432599	0,0781386	0,0781386	0,0781386	0,14621807			0,04277558
	40-201	1	48	0,32997558	6,46160545	0,04326599	0,04326599	0,04326599	0,51379716			0,3053089
	41-201	2	40	0,22597696	5,47621756	0,04378263	0,04378263	0,04378263	0,32081803			0,12679861
	42-201	2	32	0,30922762	4,31993109	0,03144772	0,03144772	0,03144772	0,49903625			0,23562337
	110-201	1	31	0,31237379	6,5176507	0,04089793	0,04089793	0,04089793	0,17705296			0,11746241
	110-202	1	33	0,32725556	3,92161994	0,02926931	0,02926931	0,02926931	0,34723488			0,15179653
	113-201	2	42	0,2906643	4,9205297	0,03556209	0,03556209	0,03556209	0,58000468			0,31854769
	117-201	2	33	0,11182211	0,88810563	0,01903885	0,01903885	0,01903885	0,43051567			0,11092199
	118-201	1	39	0,23998855	3,63703819	0,04390013	0,04390013	0,04390013	0,36945684			0,13228618
	133-201	1	32	0,51496825	12,2939845	0,0491587	0,0491587	0,0491587	0,38418582			2,25899429
	134-201	2	34	0,18849484	4,96230797	0,03479941	0,03479941	0,03479941	0,55725654			0,33623229
	136-201	2	31	0,46326226	17,1145856	0,06359949	0,06359949	0,06359949	1,03455155			0,53782549
	137-201	1	33	0,41008384	12,2689417	0,03195329	0,03195329	0,03195329	0,68132389			0,34522128
	138-201	2	33	0,08899668	1,95262269	0,04937852	0,04937852	0,04937852	0,62703388			0,42245278
	139-201	2	30	0,07904993	1,95260266	0,17990679	0,17990679	0,17990679	2,17361335			0,96462273
Mother Group	14-301	1	31	0,05452253	1,56299161	0,02579322	0,02579322	0,02579322	0,50396486			0,30788067
	15-301	1	33	0,19478955	3,44242008	0,04663671	0,04663671	0,04663671	0,2683306			0,16397239
	16-301	1	39	0,04920611	0,52611982	0,26660007	0,26660007	0,26660007	0,19959334			0,16433249
	17-301	1	35	0,07113851	2,32662037	0,13751371	0,13751371	0,13751371	0,89673851			0,35867674
	18-301	1	31	0,08128223	0,78892675	0,05575826	0,05575826	0,05575826	0,20018459			0,05513405
	19-301	1	40	0,17935974	3,94372792	0,0318384	0,0318384	0,0318384	1,16428954			0,43572723
	20-301	1	22	0,0731085	2,54365635	0,0600318	0,0600318	0,0600318	0,05563857			0,08896803
	21-301	1	33	0,13706169	4,59650289	0,03070351	0,03070351	0,03070351	0,34622459			0,23808615
	22-301	1	31	0,11031314	2,80656629	0,04491368	0,04491368	0,04491368	0,85622562			0,41486796
	24-301	1	24	0,06798273	1,0580838	0,04752873	0,04752873	0,04752873	0,27420777			0,09897163
	25-301	1	38	0,12196779	3,19464761	0,06082218	0,06082218	0,06082218	0,31977898			0,15722239
	26-301	1	29	0,06922563	0,54882781	0,12997521	0,12997521	0,12997521	0,30005599			0,21478859
	27-301	1	46	0,06628768	1,77167176	0,02951478	0,02951478	0,02951478	0,12273518			0,14552856
	28-301	1	33	0,32059387	6,4241969	0,06645587	0,06645587	0,06645587	0,1453074			0,10119171
	29-301	1	30	0,09918758	2,06269554	0,04784791	0,04784791	0,04784791	0,50362389			0,14778763
	30-301	1	22	0,14589801	2,07656921	0,04177394	0,04177394	0,04177394	0,39966484			0,16737556
	31-301	1	38	0,13439821	3,33450651	0,0362356	0,0362356	0,0362356	0,21932754			0,15932503
	32-301	1	24	0,30978822	6,49854847	0,04301107	0,04301107	0,04301107	0,59276874			0,31073851
	34-301	1	40	0,31956271	17,9214625	0,10231249	0,10231249	0,10231249	0,58709876			0,33498193
	35-301	1	35	0,18876128	2,66610668	0,03289812	0,03289812	0,03289812	0,35306705			0,25185204
	36-301	1	28	0,15553303	4,96116229	0,05188496	0,05188496	0,05188496	0,62650133			0,17672164
	37-301	1	35	0,28773265	8,40562219	0,05066637	0,05066637	0,05066637	0,32095121			0,09824508
	38-301	1	34	0,31142493	8,94051895	0,05256287	0,05256287	0,05256287	0,71321536			0,37708356
	40-301	1	33	0,36354844	6,62054754	0,05788654	0,05788654	0,05788654	1,86807348			0,64704221
	41-301	1	33	0,17629888	12,3959913	0,05316685	0,05316685	0,05316685	2,19319788			1,09079871
	42-301	1	30	0,32123615	6,42954828	0,03196751	0,03196751	0,03196751	0,37068823			0,1913205
	110-301	1	33	0,05648824	2,48873579	0,04887845	0,04887845	0,04887845	0,44058715			0,25451748
	110-302	1	28	0,2674478	5,21241587	0,10456282	0,10456282	0,10456282	0,72763838			0,27885841
	113-301	1	24	0,10312318	4,34245343	0,03217687	0,03217687	0,03217687	0,26552375			0,09309657
	117-301	1	32	0,17582052	3,68918838	0,08835549	0,08835549	0,08835549	0,76711925			0,35468671
	118-301	1	36	0,19331334	6,58666604	0,07777139	0,07777139	0,07777139	1,18747808			0,38717858
	133-301	1	31	0,15498877	4,7549512	0,03593744	0,03593744	0,03593744	0,30682239			0,21676457
	134-301	1	38	0,18719583	4,81566707	0,03417506	0,03417506	0,03417506	0,3167542			0,21675541
	136-301	1	33	0,26729569	8,31924999	0,03573527	0,03573527	0,03573527	0,62736313			0,36749757
	137-301	1	27	0,27160691	5,24164058	0,05268405	0,05268405	0,05268405	1,13128646			0,64123892
	138-301	1	32	0,37883292	14,2594528	0,03829423	0,03829423	0,03829423	1,60536111			0,68458992
	139-301	1	27	0,3956226	5,61659739	0,05498914	0,05498914	0,05498914	0,61074884			0,24918803
Control Group	438	1	14	0,75867476	22,9309932	0,01480365	0,01480365	0,01480365	1,69362748			0,58595793
	439	2	8	0,33934992	1,21741515	0,03511792	0,03511792	0,03511792	1,10801979			0,49838973
	440	1	6	0,07578774	1,2351499	0,0351538	0,0351538	0,0351538	0,42019468			0,15166499
	441	1	16	0,37183604	14,1550918	0,04699759	0,04699759	0,04699759	0,92752334			0,35995209
	442	1	11	0,17216281	6,89813352	0,06569178	0,06569178	0,06569178	1,24012512			0,61556138
	443	1	10	0,14036923	1,99235636	0,05846127	0,05846127	0,05846127	0,86990389			0,52454519
	444	1	14	0,2048867	9,44324066	0,04101793	0,04101793	0,04101793	0,67167167			0,27381223
	445	1	9	0,76969831	18,3427863	0,07565322	0,07565322	0,07565322	1,13309884			0,35182641
	446	1	9	0,28724161	9,57280644	0,02550749	0,02550749	0,02550749	1,65523746			0,80567884
	447	1	16	0,39828061	7,18814141	0,13705039	0,13705039	0,13705039	0,57754588			0,02394831
	448	1	9	0,68953305	22,0182289	0,08196423	0,08196423	0,08196423	2,11667779			0,16131342
	450	1	14	0,30543854	5,84669258	0,06828266	0,06828266	0,06828266	0,98804914			0,51574681
	451	1	8	0,46362766	8,53705612	0,09855736	0,09855736	0,09855736	0,7863367			0,0553243
	452	1	5	0,21592562	7,89489401	0,11673993	0,11673993	0,11673993	0,51362183			0,03574616
	454	1	11	0,58181934	18,5897784	0,07394526	0,07394526	0,07394526	1,29875234			0,64696545
	455	1	8	0,16951103	2,54507548	0,06312082	0,06312082	0,06312082	0,1574319			0,08555453
	456	1	5	0,46770222	22,6605225	0,10463207	0,10463207	0,10463207	1,6348792			0,80766807
	458	1	13	0,68491421	20,234732	0,02103805	0,02103805	0,02103805	0,41129518			0,25958337
	459	1	9	0,38259907	6,04236358	0,1705233	0,1705233	0,1705233	0,42631225			0,42631225
	460	1	5	0,17690973	3,44905516	0,06370336	0,06370336	0,06370336	1,54069738			0,10837733
	461	2	3	0,18469964	1,22873825	0,05302272	0,05302272	0,05302272	1,35588738			0,8569963
	499	1	32	0,16447688	7,30870818	0,04152085	0,04152085	0,04152085	1,2008679			0,73498189
	453	1	11	0,38316419	6,3698826	0,10806499	0,10806499	0,10806499	0,49090998			0,31988068
	494	1	23	0,32107781	5,65891267	0,0587717	0,0587717	0,0587717	0,95266655			0,56585625
	496	1	33	0,37041472	12,1065216	0,08827788	0,08827788	0,08827788	0,90431926			0,42532009
	497	1	23	0,19156103	4,62683816	0,03958804	0,03958804	0,03958804	1,31604862			0,59523165
	498	1	34	0,44979454	9,63240348	0,05102729	0,05102729	0,05102729	2,09072363			1,09796443
	3100	2	23	0,5136144	12,8842986	0,06035269	0,06035269	0,06035269	1,15807345			0,59095157
	3101	1	31	0,35101251	11,7488846	0,08464498	0,08464498	0,08464498	1,44064769			0,7672073
	3103	1	30	0,45056602	5,44214709	0,06454239	0,06454239	0,06454239	0,89467819			0,59467552
	3104	1	32	0,42168306	8,73274402	0,05917393	0,05917393	0,05917393	1,07623564			0,64588296
	3105	2	49	0,55379535	13,7243818	0,03793872	0,03793872	0,03793872	1,63322675			0,78806466
	3106	2	30	0,49628441	9,21219519	0,04553467	0,04553467	0,04553467	0,45922354			0,16576693
	3107	2	50	0,31033116	6,60410506	0,03333764	0,03333764	0,03333764	1,12006783			0,58221645
	3109	2	31	1	1	1	1	1	1			1
	3110	2	33	0,69181512	16,7596801	0,04781826	0,04781826	0,04781826	0,6779918			0,33569812
	490	1	24	0,13882763	1,41147522	0,05139607	0,05139607	0,05139607	0,36323982			0,24593868
SPERM-RNA	SPERM-RNA	2	42	0,12317476	8,20131866	0,09834269	0,09834269	0,09834269	0,73893351			0,46506153
ref Nasta	3109	1	31	1	1	1	1	1	1			1

Supplementary Figure 1 The serum miRNA expression profiles.
($p<0.05$), (log fold change, Unpaired t-test).

A



B

	miR-130a-3p	miR-144-3p	miR-486-5p	miR-17-5p
Log(fold change) Patients' mother (n=37)	-0.08926	-0.78616	-127.57338	-0.3695
Log(fold change) Control Women (n=8)	1	1	1	1

Fig.1a Patients' mothers compared to healthy female control.
4 miRNAs (downregulated) were found as shown in the graph (A) and table (B).

C

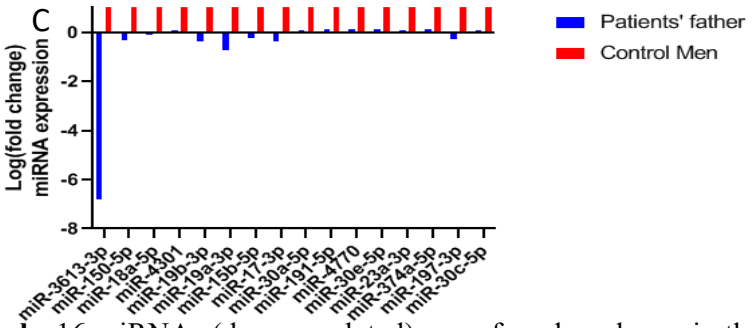


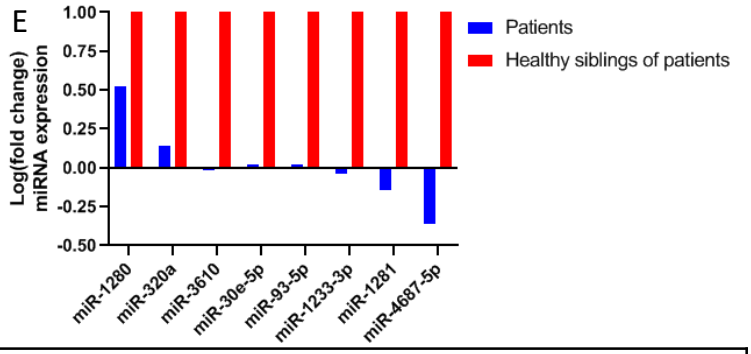
Fig.1b Patients' fathers compared to healthy male controls. 16 miRNAs (downregulated) were found as shown in the graph (C) and table (D).

D

miRNA	Log(fold change) Patients' fathers (n=37)	Log(fold change) Control Men (n=8)	miRNA	Log(fold change) Patients' fathers (n=37)	Log(fold change) Control Men (n=8)
miR-3613-3p	-6.80606	1	miR-30a-5p	-0.03665	1
miR-150-5p	-0.31346	1	miR-191-5p	-0.02524	1
miR-18a-5p	-0.09276	1	miR-4770	-0.01006	1
miR-4301	-0.04901	1	miR-30e-5p	-0.03094	1
miR-19b-3p	-0.37706	1	miR-23a-3p	-0.04609	1
miR-19a-3p	-0.71662	1	miR-374a-5p	-0.02271	1
miR-15b-5p	-0.25856	1	miR-197-3p	-0.26137	1
miR-17-3p	-0.3618	1	miR-30c-5p	-0.05194	1

Fig.1c miRNA Autism patients compared to their healthy siblings. 8 miRNAs (3 up- and 5 downregulated) were found as shown in the graph (E) and table (F).

E



F

	miR-1280	miR-320a	miR-3610	miR-30e-5p	miR-93-5p	miR-1233-3p	miR-1281	miR-4687-5p
Log(fold change) Patients (n=45)	0.523376	0.141137	0.008134	-0.00237	-0.00445	-0.03715	-0.14263	-0.36016
Log(fold change) Healthy siblings of patients (n=33)	1	1	1	1	1	1	1	1

G

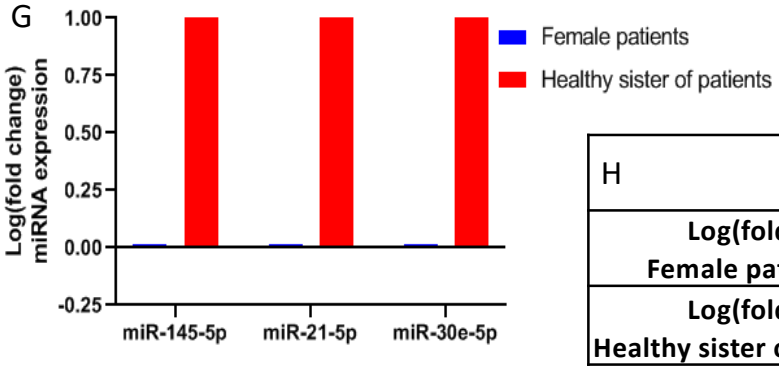
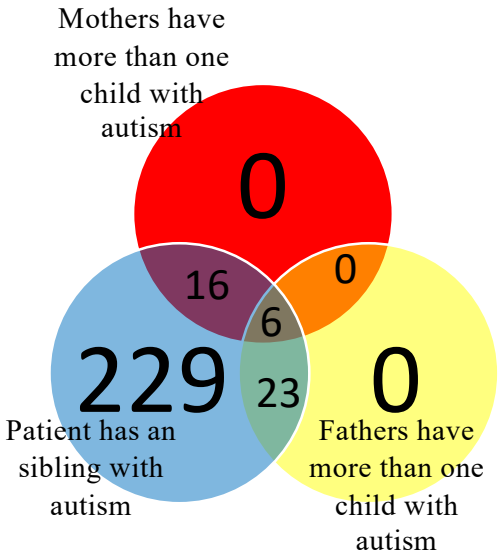


Fig.1d Female autism patients compared to the patients' sisters. 3 miRNAs (2 up- and 1 downregulated) were found as shown in the graph (G) and table (H).

H

	miR-145-5p	miR-21-5p	miR-30e-5p
Log(fold change) Female patients (n=14)	0.013661	0.013045	-0.00342
Log(fold change) Healthy sister of patients(n=16)	1	1	1

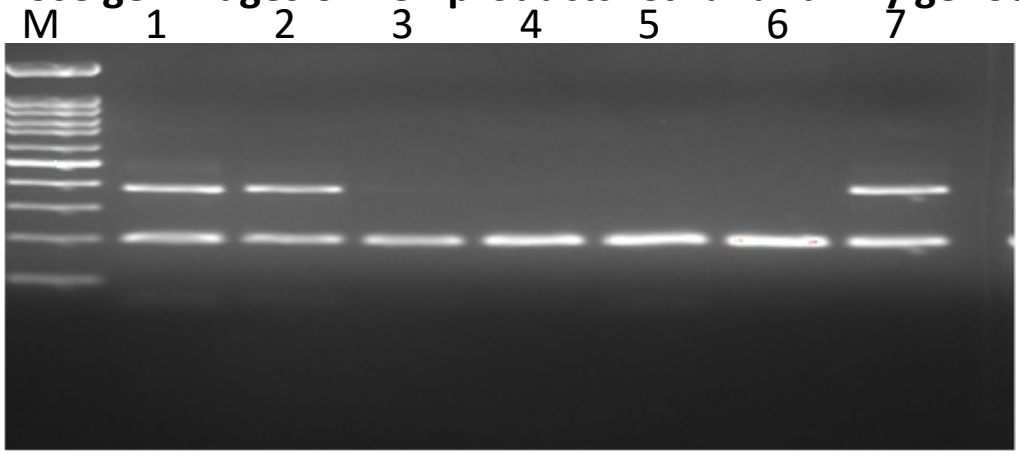
Groups	Number of common miRNAs	miRNAs
Fathers have more than one child with autism Mothers have more than one child with autism Patient has an sibling with autism	6	**miR-19a-3p (downregulated)** **miR-361-5p (downregulated)** **miR-3613-3p (downregulated)** **miR-150-5p (downregulated)** **miR-126-3p (downregulated)** **miR-499a-5p (downregulated)**
Fathers have more than one child with autism Patient has an sibling with autism	23	miR-363-3p, miR-17-3p, miR-32-5p, miR-1193 miR-18a-3p, let-7b-5p, miR-3159, miR-1280 miR-202-3p, miR-605-5p, miR-9-5p, miR-143-3p, miR-1307-3p, miR-421, miR-126-3p, miR-11111, miR-18a-5p, miR-576-5p, miR-660-5p, miR-151a-3p, miR-1301-3p, miR-4301 and miR-4732-5p
Mothers have more than one child with autism Patient has an sibling with autism	16	miR-92a-3p, miR-130a-3p, miR-192-5p, miR-130b-3p, miR-16-5p, miR-19b-3p, miR-195-5p, miR-144-3p, miR-17-5p,NOTE miR-140-3p, miR-25-3p, miR-486-5p, miR-451a miR-425-5p, miR-30e-5p, miR-93-5p
		miR-629-5p, miR-942-5p, miR-181b-5p, miR-373-5p, miR-30a-3p, miR-495-3p, miR-4770 miR-548d-5p, miR-631 miR-337-3p, miR-1281 miR-433-3p, miR-34a-5p, miR-100-5p, miR-223-5p, miR-324-5p, miR-542-3p, miR-671-3p, miR-10a-5p, miR-1 miR-424-5p, miR-574-3p, miR-30e-3p, miR-378a-5p, miR-486-3p, miR-7-5p, miR-128-3p, miR-374b-5p,NOTE miR-4286 miR-103a-3p, miR-320b miR-339-3p, miR-184 miR-28-3p, miR-190a-5p, miR-26a-5p, miR-769-5p, miR-503-5p, miR-627-5p, miR-320e miR-183-5p, miR-422a miR-134-5p, miR-222-3p, miR-3911 miR-106b-5p, miR-122-5p, miR-378g miR-324-3p, miR-744-5p, let-7i-5p, miR-3689a-5p,NOTE miR-423-3p, miR-375 miR-487a-3p, miR-181a-5p, miR-454-3p, miR-3646 miR-378h miR-29b-3p, miR-191-5p, miR-497-5p, miR-183-3p, miR-382-5p, miR-21-5p, miR-28-5p, miR-133b miR-4524a-3p, miR-15b-3p, miR-374a-5p, miR-181d-5p, miR-362-3p, miR-27a-3p, miR-101-3p, miR-1260a miR-4651 miR-152-3p, miR-3183 miR-329-3p, miR-125a-5p, miR-425-3p, miR-1180-3p, miR-4323 miR-1260b miR-615-5p, let-7e-5p, miR-151bNOTE miR-139-5p, miR-7-2-3p, miR-214-3p, miR-625-3p, miR-342-5p, miR-339-5p, miR-487b-3p, miR-550a-5p, miR-16-2-3p, miR-145-5p, miR-2110 miR-1976 miR-345-5p, miR-1207-5p, miR-146b-5p, miR-628-3p, miR-27b-3p, miR-505-3p, miR-365a-3p,NOTE miR-224-5p, miR-4732-3p, miR-3651 miR-301a-3p, miR-145-3p, let-7c-5p, miR-3191-3p, let-7a-3p, miR-4274 miR-125b-5p, miR-22-5p, miR-4422 miR-1587 miR-489-3p, miR-3120-3p, let-7f-1-3p, miR-1910-5p, miR-30d-5p, miR-7-1-3p, miR-23a-3p, miR-376c-3p, miR-369-3p, miR-181c-3p, miR-3131 miR-15a-5p, miR-532-5p, miR-185-5p, miR-199a-5p, miR-29a-3p, miR-4454 miR-188-5p, miR-99b-5p, miR-3610 miR-98-5p, miR-26b-5p, miR-296-5p miR-664a-3p, miR-219a-1-3p, miR-378a-3p, miR-590-5p, miR-338-3p, miR-20a-5p, miR-381-3p, miR-1237-3p, miR-331-3p, miR-92b-3p, let-7g-5p, miR-142-3p, miR-373-3p, miR-1287-5p, miR-30a-5p, miR-186-5p, miR-197-3p, miR-29c-3p, miR-223-3p, miR-15b-5p, miR-4538 miR-30c-5p, miR-4306 miR-15a-3p, miR-20b-5p, miR-22-3p, miR-328-3p, miR-4296 miR-885-5p, miR-340-5p, miR-342-3p, miR-326 miR-191-3p, miR-3200-5p, miR-23b-3p, miR-490-3p, miR-126-5p, miR-409-3p, miR-4505 miR-637 miR-485-3p, miR-4687-5p, miR-4291 miR-148b-3p, miR-21-3p, miR-1913 miR-215-5p, miR-132-3p, miR-200c-3p, miR-378b miR-877-5p, miR-200b-3p, miR-1233-3p, miR-502-3p, miR-148a-3p, miR-99a-5p, let-7d-3p, miR-194-5p, miR-151a-5p, miR-142-5p, miR-3923 miR-378i miR-4516 miR-335-5p, miR-301b miR-144-5p, miR-766-3p, miR-596 miR-484 miR-3185 miR-24-3p, miR-675-3p, miR-130b-5p, miR-652-3p, miR-199b-5p, miR-30b-5p, miR-146a-5p, miR-877-3p, miR-1247-5p, miR-1225-3p, let-7f-5p, miR-181c-5p, miR-206 let-7a-5p, miR-199a-3p,NOTE miR-519b-5p,NOTE miR-370-3p,
Patient has an sibling with autism	229	

According to a p value<0.001 in the microRNA analysis, six common the "Six-miRNAs" were identified.

Supplementary Figure 1I

Supplementary Figure 2

Agarose gel images of PCR products: *Cc2d1a* family genotyping.



Supplementary Fig.2 Lines 1, 2 and 7 are heterozygous for *Cc2d1a* gene (see primer in Materials and Methods). Two fragments are produced (200 and 400 base pair (bp)), lines 3, 4, 5 and 6 wild type normal diploid genotypes with only 200 bp fragment.

Normal (200 bp), heterozygote (200 and 400 bp), M: Marker (100-1500 bp)

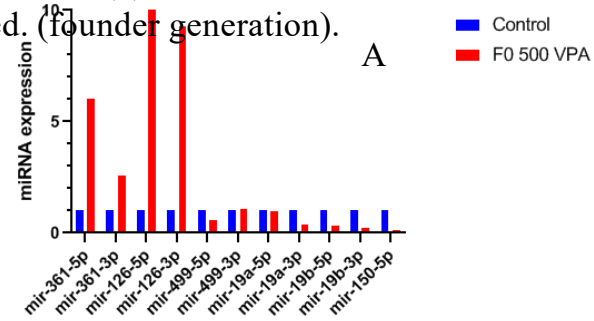
Supplementary Fig. 3 miRNAs analysis in mouse Blood and Hippocampus

Raw data are presented in a graph and table for the 5p strand (6) and the 3p premicroRNA (5) of the "Six-miRNAs" differentially expressed. (founder generation).

Supplementary Fig.3a samples from VPA-treated males 500 mg/ml (founder generation). Blood samples (A) graph (B) Table

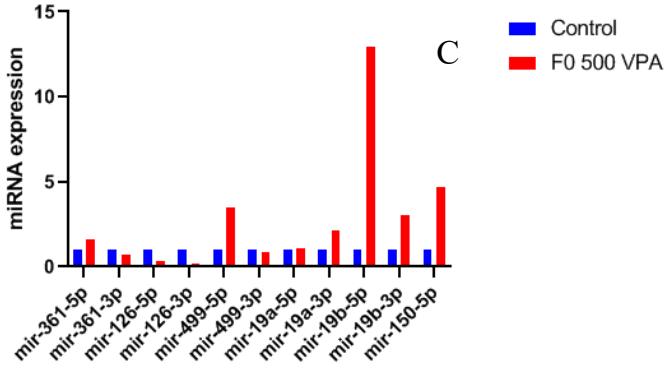
Supplementary Fig.3b Hippocampus (C) graph (D) Table

A



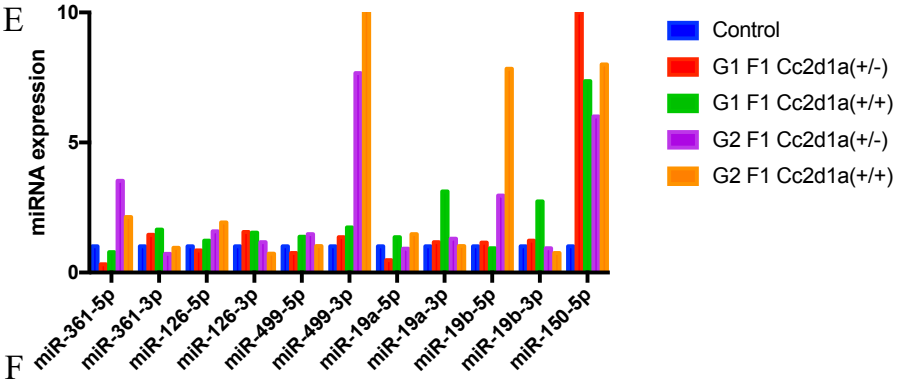
B	Fold Change 500 mg/kg VPA (n=5)	Fold Change Control (n=5)
miR-361-5p	6.026	1
miR-361-3p	2.560	1
miR-126-5p	11.086	1
miR-126-3p	9.297	1
miR-499-5p	0.585	1
miR-499-3p	1.057	1
miR-19a-5p	0.984	1
miR-19a-3p	0.352	1
miR-19b-5p	0.308	1
miR-19b-3p	0.244	1
miR-150-5p	0.118	1

C



D	Fold Change 500 mg/kg VPA (n=5)	Fold Change Control (n=5)
miR361-5p	1.61	1
miR361-3p	0.74	1
miR-126-5p	0.35	1
miR-126-3p	0.21	1
miR499-5p	3.49	1
miR499-3p	0.86	1
miR-19a-5p	1.06	1
miR-19a-3p	2.16	1
miR-19b-5p	12.94	1
miR-19b-3p	3.01	1
miR150-5p	4.67	1

E

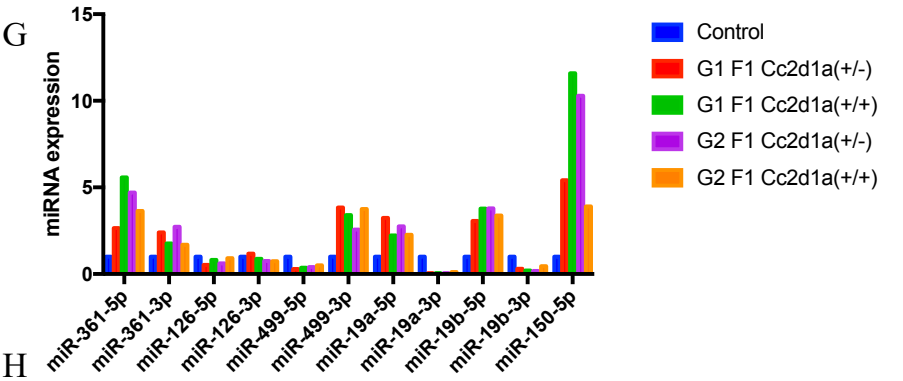


Supplementary Fig.3c Blood samples (E) graph (F) Table males from the *Cc2d1a +/-* family group compared to the control.

F

	miR--361-5p	miR-361-3p	miR--126-5p	miR--126-3p	miR-499-5p	miR-499-3p	miR--19a-5p	miR--19a-3p	miR--19b5p	miR--19b-3p	miR-150-5p
Control (n=5)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
G1 F1 Cc2d1a(+/-) (n=5)	0.32	1.45	0.85	1.56	0.75	1.36	0.48	1.17	1.15	1.23	10.00
G1 F1 Cc2d1a(+/+) (n=5)	0.79	1.65	1.23	1.54	1.38	1.74	1.36	3.12	0.94	2.74	7.36
G2 F1 Cc2d1a(+/-) (n=5)	3.53	0.72	1.59	1.17	1.48	7.67	0.92	1.30	2.96	0.94	6.00
G2F1 Cc2d1a(+/+) (n=5)	2.14	0.95	1.93	0.73	1.02	10.00	1.48	1.02	7.84	0.75	8.00

G

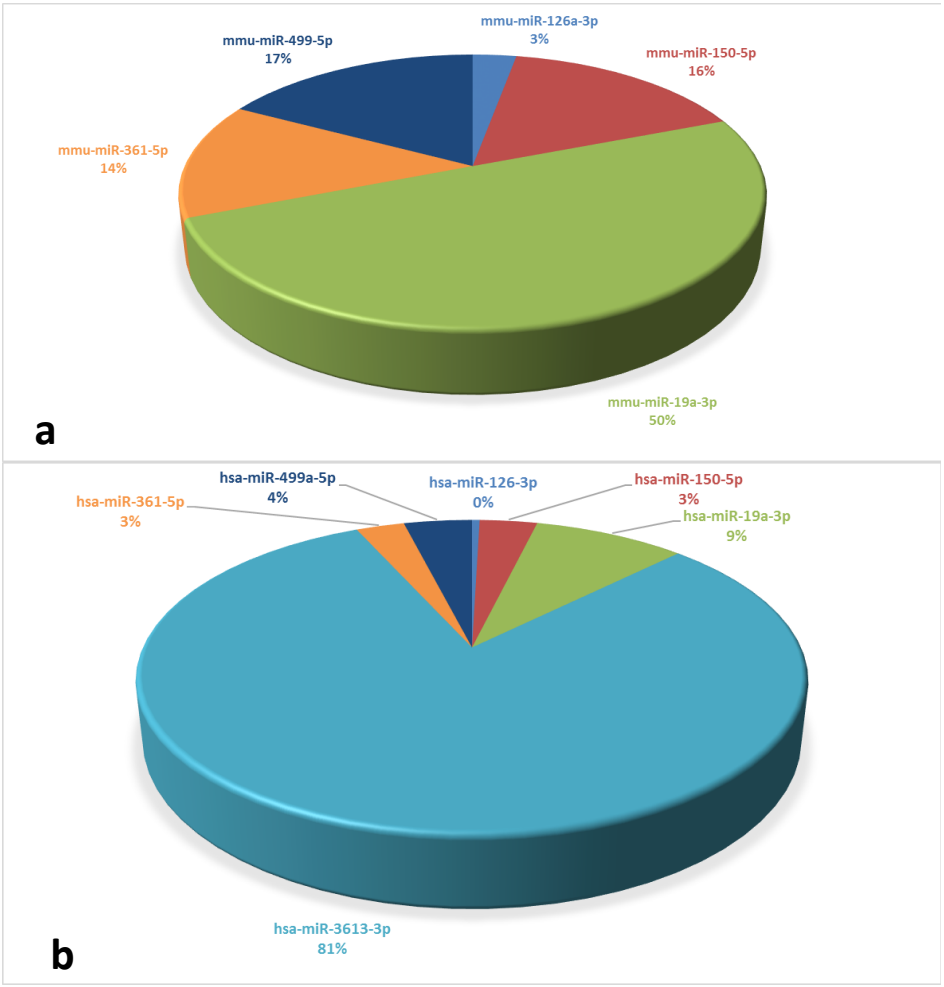


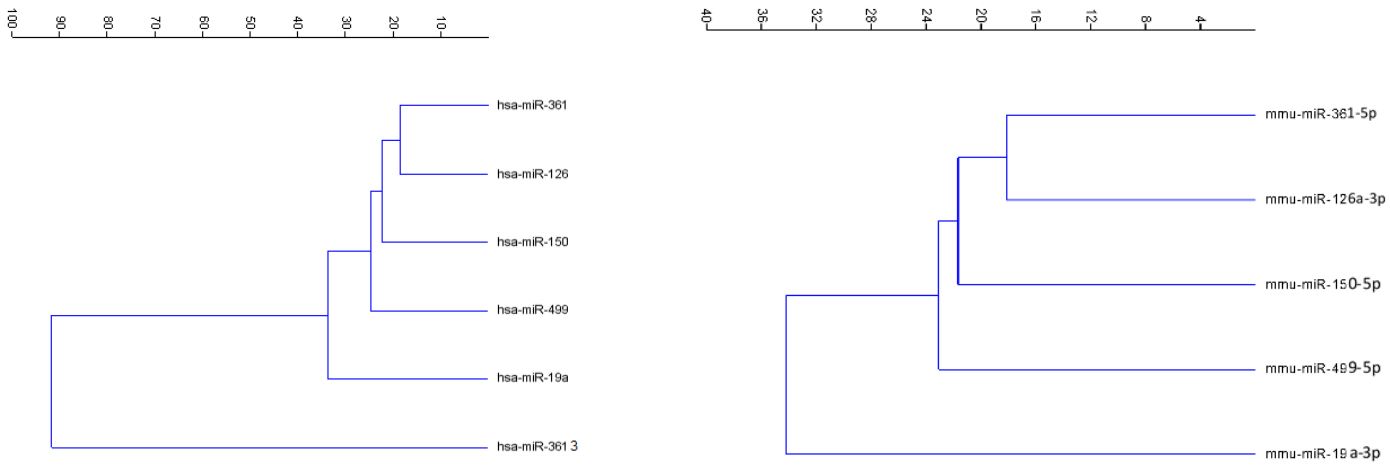
Supplementary Fig.3c Blood samples (G) graph (H) Table males from the *Cc2d1a +/-* family group compared to the control.

H

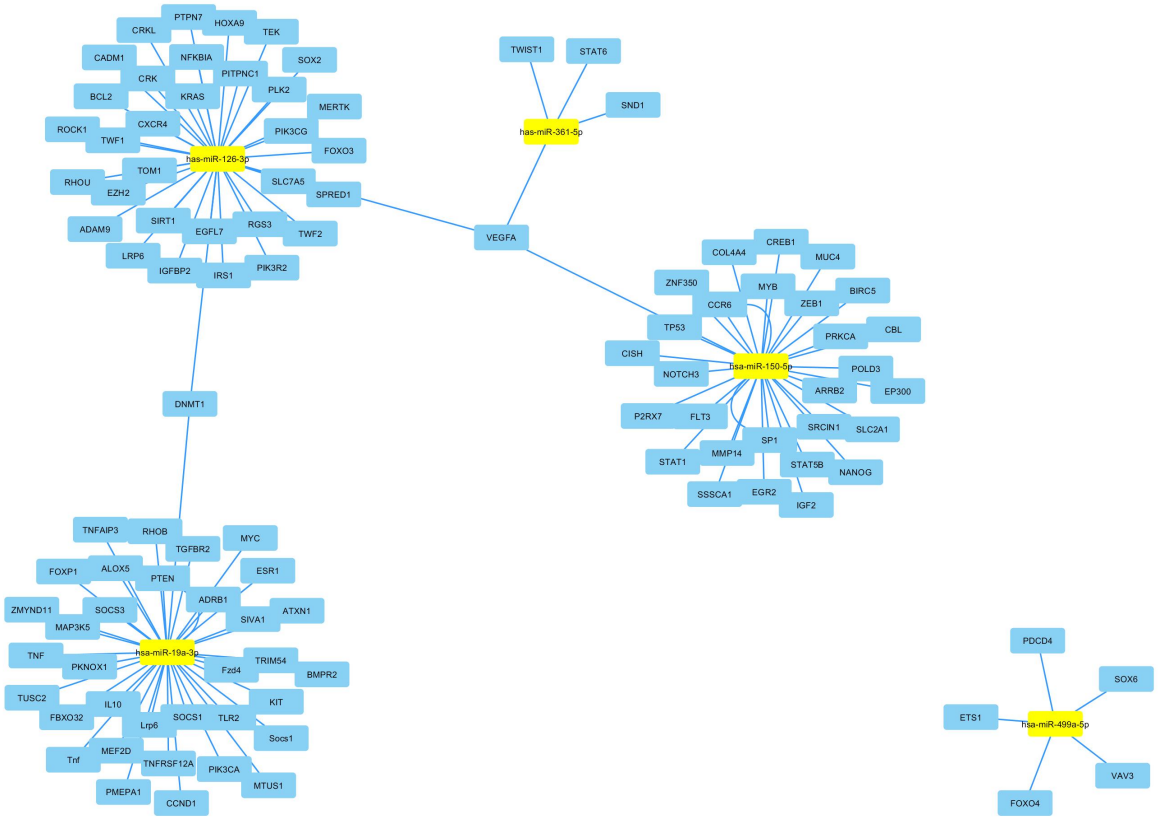
	miR--361-5p	miR-361-3p	miR--126-5p	miR--126-3p	miR-499-5p	miR-499-3p	miR--19a-5p	miR--19a-3p	miR--19b5p	miR--19b-3p	miR-150-5p
Control (n=5)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
G1 F1 Cc2d1a(+/-) (n=5)	2.66	2.41	0.53	1.18	0.29	3.84	3.24	0.05	3.07	0.31	5.42
G1 F1 Cc2d1a(+/+) (n=5)	5.58	1.77	0.82	0.88	0.37	3.41	2.23	0.05	3.78	0.20	11.59
G2 F1 Cc2d1a(+/-) (n=5)	4.70	2.73	0.62	0.75	0.41	2.57	2.76	0.05	3.80	0.18	10.29
G2F1 Cc2d1a(+/+) (n=5)	3.64	1.69	0.92	0.74	0.50	3.76	2.27	0.12	3.38	0.45	3.91

Supplementary Fig. 4
Pie chart reflecting the relative percentages of newly identified miRNA target genes.
Predicted miRNA target genes in (**a**), *Mus musculus*, including miR-19a-3p, miR-361-5p, miR-150-5p, miR-126-3p, and miR-499a-5p and (**b**) *Homo sapiens*, including miR-19a-3p, miR-361-5p, miR-3613-3p, miR-150-5p, miR-126-3p, and miR-499a-5p. Mouse target genes for miR-3613-3p are unknown. Each group of predicted target genes of these miRNAs with conserved sites was selected from the most recently updated list from TargetScan7.2.





Supplementary Fig. 4c Hierarchical clustering dendrogram displaying the similarity between the genes targeted by each of six *Homo sapiens* miRNAs: miR-19a-3p, miR-361-5p, miR-3613-3p, miR-150-5p, miR-126-3p, and miR-499a-5p (left), and each of five *Mus musculus* predicted target microRNAs: miR-19a-3p, miR-361-5p, miR-150-5p, miR-126-3p, and miR-499a-5p (right). For both groups, the distinction between the miRNAs is based on the suggested target genes. The horizontal axis represents the distance between miRNA clusters. This demonstrates that each group of miRNAs in one cluster exhibits more common targeted genes or is very close together. As an example, mmu-miR-361-5p and mmu-miR-126-3p show more similarity, while hsa-miR-3613 appears to present more target genes than any of the other microRNAs. Predicted target genes with conserved sites were downloaded from TargetScan7.2.



Supplementary Fig. 4d- Visualization of miRNA-target interaction using miRTarBase network where yellow squares refer to miRNAs, while blue ones refer to their target genes. With this program, for five out of six miRs multiples target genes are found, but any target for miR-3613-3p.

Supplementary Table 2 The six miRNAs sequences.
Sequences of the "Six-microRNAs" which was found downregulated in all autistic children

miRNAs	Sequence
miR-19a-3p	GUGCAAAUCUAUGCAAAACUGA
miR-361-5p	UUAUCAGAAUCUCCAGGGGUAC
miR-3613-3p	UGUUGUACUUUUUUUUUUGUUC
miR-150-5p	UCUCCCAACCCUUGUACCAGUG
miR-126-3p	UCGUACCGUGAGUAAUAAUGCG
miR-499a-5p	UUAAGACUUGCAGUGAUGUUU

Supplementary Table 3 Numbers of animals under study after valproic acid treatment (founder F0) and their progenies (F: Female, M: Male). At 14 days post birth, all offspring (8-12 pups from each litter) were injected (intraperitoneally) with sodium salt VPA at 300 to 700 mg/ml or with saline buffer as a control. Only 10 males were used for the behavioral tests and 5 for the miRNA evaluation.

Strain	Generation	Saline		300 mg/kg		400 mg/kg		500 mg/kg		600 mg/kg		700 mg/kg	
		F	M	F	M	F	M	F	M	F	M	F	M
B6/D2	F0	4	10	6	10	2	9	5	8		1	2	2
	F1					6	6	16	13				
	F2							12	14				
Balb/c	F0	7	9	14	11	11	11		6				
	F1			9	10	21	12	9	9				
	F2			6	14	12		10	10				
	F0	7	9	6	3	3	3		2				
	F1			5	5	6	11	9	9				
	F2												

Supplementary Table 4 Samples and list of miRNAs Samples and sequences of the microRNAs used in the mouse models.

Group Name	Behavioural Test	miRNA expression samples	Names of miRNAs	Sequences of miRNAs
F0 300 VPA	10 males from each group Novel object Social interaction Tail suspension Marble burying	5 males from each group Sperm Blood Hippocampus	mmu-miR-150-5p	UCUCCCAACCCUUGUACCAGUG
F0 400 VPA			mmu-miR-150-3p	CUGGUACAGGCCUGGGGGAUAG
F0 500 VPA			mmu-miR-126a-3p	UCGUACCGUGAGUAAUAAUGCG
F1 500 VPA			mmu-miR-126a-5p	CAUUAUUACUUUUGGUACGCG
Saline Control			mmu-miR-361-5p	UUAUCAGAAUCUCCAGGGGUAC
Control			mmu-miR-361-3p	UCCCCCAGGUGUGAUUCUGAUUUGU
Group1 *Cc2d1a(+/+)*			mmu-miR-499-5p	UUAAGACUUGCAGUGAUGUUU
Group1 *Cc2d1a (+/-)*			mmu-miR-499-3p	GAACAUCACAGCAAGUCUGUGCU
Group2 *Cc2d1a(+/+)*			mmu-miR-19a-3p	UGUGCAAAUCUAUGCAAAACUGA
Group2 *Cc2d1a(+/-)*			mmu-miR-19a-5p	UAGUUUUGCAUAGUUGCACUAC
Human Sperm (Father of two patients)	1 man	Sperm	mmu-miR-19b-3p	UGUGCAAAUCCAUGCAAAACUGA
Human Sperm Control	3 men	Sperm	mmu-miR-19b-1-5p	AGUUUUGCAGGUUUGCAUCCAGC

Supplementary Table 5 miRNAs gene target
Some of the candidate genes indicated to be involved in autism by in silico analysis share common microRNAs that target their transcripts and are mostly expressed at the early stage of development.

Gene	microRNA		Est in early embryos	
	Mouse	Human	Mouse	Human
Nlgn1		miR-495	+	+
Pten	miR-495 miR-19a miR-19b	miR-495 miR-19a	+	+
Gabrb3		miR-499	-	+
Slc6a4			-	-
Fmr1	miR-495 miR-19a miR-19b miR-499	 miR-19a miR-19b miR-499	+	+
Foxp2	miR-19a miR-19b miR-499	miR-19a miR-19b miR-499	-	-
Cadps2	miR-495	miR-495 miR-499		+
Cc2d1a	miR-19a miR-19b		+	+