

## SUPPLEMENTARY TABLES

**Supplementary Table 1. Primers for circRNAs and their internal reference.**

Genes	Primers	
	Forward	Reverse
hsa_circ_0017242	5'-TTGGTGGAGGACCAGATGAT-3'	5'-CCCCCAACTTGGAGAAATGGTA-3'
hsa_circ_0017251	5'-TCCTTCCAGACAAAAGACCGTT-3'	5'-TCCACATCTTGAGGTTTCTCTT-3'
hsa_circ_0006696	5'-TCCTTCCAGACAAAAGACCGT-3'	5'-TCCACTTGCCTTCTCTCGAAC-3'
hsa_circ_0017252	5'-CCTTCCAGACAAAAGACCGT-3'	5'-CCCCCAACTTGGAGAAATGGT-3'
hsa_circ_0017243	5'-GCAGCCACCATGAAGACATTC-3'	5'-AGGTAAATCCACATCTTGAGGTT-3'
hsa_circ_0004649	5'-TGAAGACAGATGGCTCATTTCAT-3'	5'-GGTTTGGATTCTCTGCTGCT-3'
hsa_circ_0017254	5'-GGATGCCTCTACAACCCATC-3'	5'-CCCCCAACTTGGAGAAATGGT-3'
hsa_circ_0017246	5'-ACCGCACACGTTTCTATGGT-3'	5'-ATGTGTTTGGCTTTGGTCGT-3'
hsa_circ_0017250	5'-CATCCCTTTTAAACATCCTTGAA-3'	5'-GTGTTTGGCTTTGGTCGTTC-3'
hsa_circ_0000199	5'-CAAATAAACGCCTTGGTGGA-3'	5'-ATAGAAACGTGTGCGGTCCT-3'
hsa_circ_0017247	5'-AGGACCGCACACGTTTCTAT-3'	5'-GGAAGTATCTTGGCCTCCAG-3'
hsa_circ_0017244	5'-TTTGCAAAGAAGGGATCACA-3'	5'-AGGGTTTGGATTCTCTGCTG-3'
hsa_circ_0017253	5'-TGGTTCGAGAGAAGGCAAGT-3'	5'-GGTTTGGATTCTCTGCTGCT-3'
hsa_circ_0002240	5'-CCTCCTTTTAAACCTCAAGTAACATC-3'	5'-ATAGAAACGTGTGCGGTCCT-3'
hsa_circ_0017245	5'-ACCGCACACGTTTCTATGGT-3'	5'-TCGCCCCCATTAAACATATTC-3'
hsa_circ_0017248	5'-AGGACCGCACACGTTTCTAT-3'	5'-AGGGTTTGGATTCTCTGCTG-3'
GAPDH	5'-ACAACCTTGGTATCGTGGAAGG-3'	5'-GCCATCACGCCACAGTTTC-3'

**Supplementary Table 2. Primers for miRNAs and their internal reference.**

Genes	Primers	
	Forward	Reverse
miR-613	5'-GGCGAAAGGAATGTTCTTCT-3'	5'-CAGTGCCTGTCGTGGAGT-3'
miR-1-3p	5'-GCGGCGGTGGAATGTAAAGAAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-206	5'-CGTCAGAAGGAATGATGCACAG-3'	5'-ACCTGCGTAGGTAGTTTCATGT-3'
miR-147b	5'-GCGGCGGGTGTGCGGAAATGCTTC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-450b-5p	5'-GCGGCGGTTTTGCAATATGTTT-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-942-5p	5'-GCGGCGGTCTTCTCTGTTTTGG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-20a-5p	5'-GCGGCGGTAAAGTGCTTATAGTG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-106b-5p	5'-GCGGCGGTAAAGTGCTGACAGTG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-20b-5p	5'-GCGGCGGCAAAGTGCTCATAGTGC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-526b-3p	5'-GCGGCGGAAAGTGCTTCCTTT-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-519d-3p	5'-GCGGCGGCAAAGTGCCTCCC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-93-5p	5'-GCGGCGGCAAAGTGCTGTTCGTG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-17-5p	5'-GCGGCGGCAAAGTGCTTACAGTG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-325	5'-GCGGCGGCTAGTAGGTGTCCAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-382-3p	5'-GCGGCGGAATCATTACGGAACAAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-337-3p	5'-GCGGCGGCTCCTATATGATGCC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-656-3p	5'-GCGGCGGAATATTATACAGTCAAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-3611	5'-GCGGCGGTTGTGAAGAAAGAAA-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-516b-5p	5'-GCGGCGGATCTGGAGGTAAGAAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-3129-5p	5'-GCGGCGGGCAGTAGTGTAGAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-199a-3p	5'-GCGGCGGACAGTAGTCTGCAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-199b-3p	5'-GCGGCGGACAGTAGTCTGCAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-6509-3p	5'-GCGGCGGTTCCACTGCCACTAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-9-5p	5'-GCGGCGGTCTTTGGTTATCTAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-382-5p	5'-GCGGCGGGAAGTTGTTCTGTTG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-526b-5p	5'-GCGGCGGCTCTTGAGGGAAGCAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-432-5p	5'-GCGGCGGTCTTGAGTAGGTC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-224-3p	5'-GCGGCGGAAAATGGTGCCCTAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-522-3p	5'-GCGGCGGAAAATGGTTCCTTTAG-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
miR-144-5p	5'-GCGGCGGGGATATCATATAC-3'	5'-ATCCAGTGCAGGGTCCGAGG-3'
U6	5'-CTCGCTTCGGCAGCAC-3'	5'-AACGCTTCACGAATTTGCGT-3'

**Supplementary Table 3. AKT3-derived circRNAs according to the encyclopedia of RNA interactomes (ENCORI) and circinteractome databases.**

CircRNA ID	Position	Strand	Genomic length	Spliced length	ENCORI	CircInteractome
hsa_circ_0017242	chr1:243708811-244006584	-	297773	1363	√	√
hsa_circ_0112774	chr1:243708811-243801044	-	92233	822	×	√
hsa_circ_0017251	chr1:243776972-243859018	-	82046	650	√	√
hsa_circ_0112785	chr1:243772331-243772728	+	397	397	×	√
hsa_circ_0017249	chr1:243776972-243778463	-	1491	135	×	√
hsa_circ_0112773	chr1:243708811-243778463	-	69652	690	×	√
hsa_circ_0006696	chr1:243776972-243801044	-	24072	267	√	√
hsa_circ_0017252	chr1:243776972-244006584	-	229612	808	√	√
hsa_circ_0017243	chr1:243727021-243859018	-	131997	902	√	√
hsa_circ_0112797	chr1:243852874-243853025	+	151	151	×	√
hsa_circ_0112778	chr1:243723199-243723386	+	187	187	×	√
hsa_circ_0112800	chr1:243858892-243905345	-	46453	46453	×	√
hsa_circ_0004649	chr1:243858892-244006584	-	147692	284	√	√
hsa_circ_0112777	chr1:243716030-243801044	-	85014	734	×	√
hsa_circ_0017254	chr1:243809194-244006584	-	197390	541	√	√
hsa_circ_0017246	chr1:243736227-243828185	-	91958	647	√	√
hsa_circ_0112788	chr1:243788210-243791306	-	3096	3096	×	√
hsa_circ_0112798	chr1:243858892-243859018	-	126	126	×	√
hsa_circ_0017250	chr1:243776972-243828185	-	51213	524	√	√
<b>hsa_circ_0000199</b>	<b>chr1:243708811-243736350</b>	-	<b>27539</b>	<b>555</b>	√	√
hsa_circ_0112770	chr1:243675625-243727150	-	51525	535	×	√
hsa_circ_0112782	chr1:243727021-243809339	-	82318	664	×	√
hsa_circ_0112787	chr1:243778397-243859018	-	80621	581	×	√
hsa_circ_0017247	chr1:243736227-243859018	-	122791	773	√	√
hsa_circ_0017244	chr1:243727021-244006584	-	279563	1060	√	√
hsa_circ_0112767	chr1:243667689-243736350	-	68661	1605	×	√
hsa_circ_0112775	chr1:243716030-243736350	-	20320	467	×	√
hsa_circ_0017253	chr1:243800912-244006584	-	205672	673	√	√
hsa_circ_0112799	chr1:243858892-243899049	-	40157	40157	×	√
hsa_circ_0112776	chr1:243716030-243778463	-	62433	602	×	√
hsa_circ_0002240	chr1:243675625-243736350	-	60725	658	√	√
hsa_circ_0112801	chr1:243927962-243928163	-	201	201	×	√
hsa_circ_0112802	chr1:244006426-244006584	-	158	158	×	√
hsa_circ_0112772	chr1:243708811-243727689	-	18878	971	×	√
hsa_circ_0112780	chr1:243727021-243778463	-	51442	387	×	√
hsa_circ_0112771	chr1:243708811-243727150	-	18339	432	×	√
hsa_circ_0112791	chr1:243800912-243859018	-	58106	515	×	√
hsa_circ_0112766	chr1:243666011-243666150	-	139	139	×	√
hsa_circ_0112783	chr1:243736227-243778463	-	42236	258	×	√
hsa_circ_0017245	chr1:243736227-243777041	-	40814	192	√	√
hsa_circ_0112790	chr1:243800912-243828185	-	27273	389	×	√
hsa_circ_0112786	chr1:243776972-243809339	-	32367	412	×	√
hsa_circ_0112792	chr1:243800981-243828177	-	27196	312	×	√
hsa_circ_0112768	chr1:243668233-243668458	-	225	225	×	√
hsa_circ_0112784	chr1:243736227-243801044	-	64817	390	×	√

hsa_circ_0017248	chr1:243736227-244006584	-	270357	931	√	√
hsa_circ_0112779	chr1:243727021-243736350	-	9329	252	×	√
hsa_circ_0112796	chr1:243846498-243859018	-	12520	12520	×	√
hsa_circ_0112769	chr1:243673800-243674014	+	214	214	×	√
hsa_circ_0112789	chr1:243800912-243809233	-	8321	171	×	√
hsa_circ_0112781	chr1:243727021-243801044	-	74023	519	×	√
hsa_circ_0112794	chr1:243828073-243859018	-	30945	238	×	√
hsa_circ_0112793	chr1:243809194-243859018	-	49824	383	×	√
hsa_circ_0112795	chr1:243828073-243898418	-	70345	39638	×	√

\*: ENCORI: <https://www.starbase.sysu.edu.cn>. CirInteractome: <https://circinteractome.nia.nih.gov/index.html>.

**Supplementary Table 4. MiRNAs potentially targeted by AKT3-derived circRNAs in accordance with The Encyclopedia of RNA Interactomes (ENCORI) and CirInteractome databases\*.**

CircRNAs	Potentially targeted miRNAs*
hsa_circ_0017242	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0017251	hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p
hsa_circ_0006696	hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p
hsa_circ_0017252	hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0017243	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p
hsa_circ_0004649	hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0017254	hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0017246	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p
hsa_circ_0017250	hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p

hsa_circ_0000199	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206
hsa_circ_0017247	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p
hsa_circ_0017244	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0017253	hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p
hsa_circ_0002240	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206
hsa_circ_0017245	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b
hsa_circ_0017248	hsa-miR-613; hsa-miR-1-3p; hsa-miR-206; hsa-miR-147b; hsa-miR-450b-5p; hsa-miR-942-5p; hsa-miR-20a-5p; hsa-miR-106b-5p; hsa-miR-20b-5p; hsa-miR-526b-3p; hsa-miR-519d-3p; hsa-miR-93-5p; hsa-miR-17-5p; hsa-miR-106a-5p; hsa-miR-325; hsa-miR-382-3p; hsa-miR-337-3p; hsa-miR-656-3p; hsa-miR-3611; hsa-miR-516b-5p; hsa-miR-3129-5p; hsa-miR-199a-3p; hsa-miR-199b-3p; hsa-miR-6509-3p; hsa-miR-9-5p; hsa-miR-382-5p; hsa-miR-526b-5p; hsa-miR-432-5p; hsa-miR-224-3p; hsa-miR-522-3p; hsa-miR-144-5p

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\*: ENCORI: <https://www.starbase.sysu.edu.cn>. CircInteractome: <https://circinteractome.nia.nih.gov/index.html>.

**Supplementary Table 5. Correlation of miRNAs with autophagy-signaling signaling pathways in triple-negative breast cancer.**

miRNAs	Notch signaling	Wnt- $\beta$ actin	PI3K/AKT/mTOR	EGFR protein	Triple-negative breast cancer
hsa-miR-613	[1]	[2]	[3]	×	[4]
hsa-miR-1-3p	[5]	×	[6]	[7]	[8]
<b>hsa-miR-206</b>	[9]	[10]	[11]	[12]	[13]
hsa-miR-147b	×	[14]	×	[15]	×
hsa-miR-450b-5p	×	[16]	×	×	×
hsa-miR-942-5p	×	[17]	×	×	×
hsa-miR-20a-5p	×	×	×	×	[18]
hsa-miR-106b-5p	[19]	[20]	×	×	×
hsa-miR-20b-5p	×	[21]	[22]	[23]	×
hsa-miR-526b-3p	×	×	×	×	×
hsa-miR-519d-3p	×	[24]	[25]	×	×
hsa-miR-93-5p	×	[26]	×	×	[27, 28]
hsa-miR-17-5p	[29]	[30]	[31]	[32]	×
hsa-miR-325	×	×	×	×	×
hsa-miR-382-3p	×	×	×	×	×
hsa-miR-337-3p	×	[33]	[33]	×	×
hsa-miR-656-3p	×	[20]	×	×	×
hsa-miR-3611	×	×	×	×	×
hsa-miR-516b-5p	×	[34]	×	×	×
hsa-miR-3129-5p	×	×	×	×	×
hsa-miR-199a-3p	[35]	[36]	[37]	[38]	[39]
hsa-miR-199b-3p	[40]	[41]	[42]	×	×
hsa-miR-6509-3p	×	×	×	×	×
hsa-miR-9-5p	[43]	[44]	×	×	[45]
hsa-miR-382-5p	×	×	×	×	×
hsa-miR-526b-5p	×	×	×	×	×
hsa-miR-432-5p	×	×	[46]	×	×
hsa-miR-224-3p	[47]	[48]	×	[49]	[50]
hsa-miR-522-3p	×	[51]	×	×	×
hsa-miR-144-5p	×	[52]	×	×	×

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