miRnoma in chronic myeloid leukemia patients with primary and secondary resistance to tyrosine kinase inhibitors

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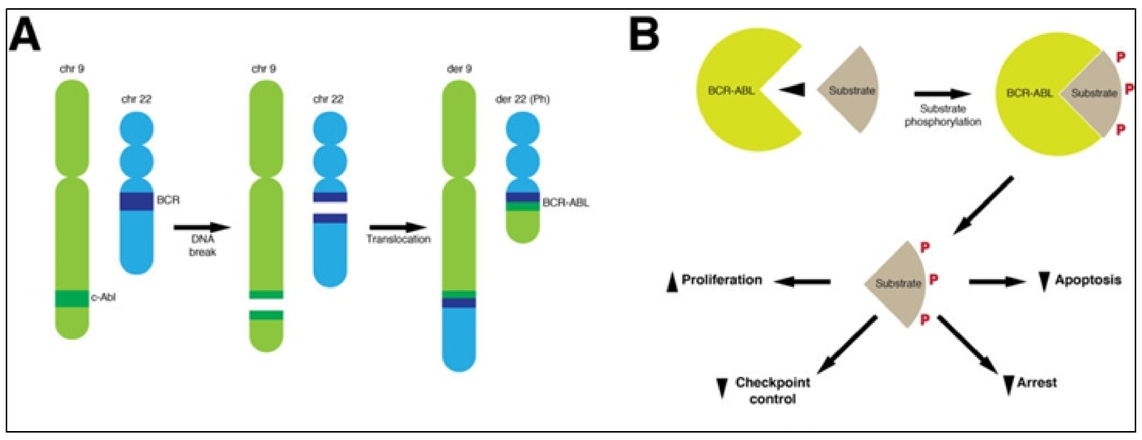
INTRODUCTION



Fonte: Mueller et al. 2015

Figure 1: (A) BCR-ABL fusion gene is formed by a reciprocal translocation which places the C-ABL oncogene on chromosome 9 under the control of the BCR locus on chromosome 22. The der 22 chromosome containing the BCR-ABL fusion product is known as the Philadelphia chromosome. (B) Phosphorylation of multiple targets by the BCR-ABL fusion kinase leads to deregulation of key cellular processes such as proliferation, checkpoint control, cell cycle arrest and apoptosis.

AIMS

Evaluate the miRNA pattern in samples from CML patients who either never responded to TKI treatment or had lost molecular response anytime during tretament.

METHODS

5 samples at diagnosis from patients who never acheived molecular response
Primary Resistance

5 samples at diagnosis from patients who acheived, but lost molecular response
Secondary Resistance

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miRvana

↓

Small RNA Sequencing, Illumina

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FastQC and removed the adapter sequences with Cutadapt.

↓

miRDeep2 pipeline to identify known and novel miRNAs

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The Venn diagrams were created using Venny online tool.

RESULTS

Table 1: five miRNA more frequent in Primary and secondary resistance group.

Primary Resistance		Secondary Resistance	
miRNA	*Reads*	miRNA	*Reads*
hsa-miR-191-5p	132,740.73	hsa-miR-21-5p	111,521.97
hsa-miR-21-5p	116,251.55	hsa-miR-191-5p	94,746.60
hsa-miR-26a-5p (-2 precursor)	70,258.32	hsa-miR-26a-5p (-2 precursor)	71,902.86
hsa-miR-26a-5p (-1 precursor)	70,199.88	hsa-miR-26a-5p (-1 precursor)	71,828.07
hsa-miR-181a-5p	63,092.15	hsa-miR-142-5p	56,459.25
hsa-miR-142-5p	54,072.26	hsa-miR-181a-5p	43,973.95

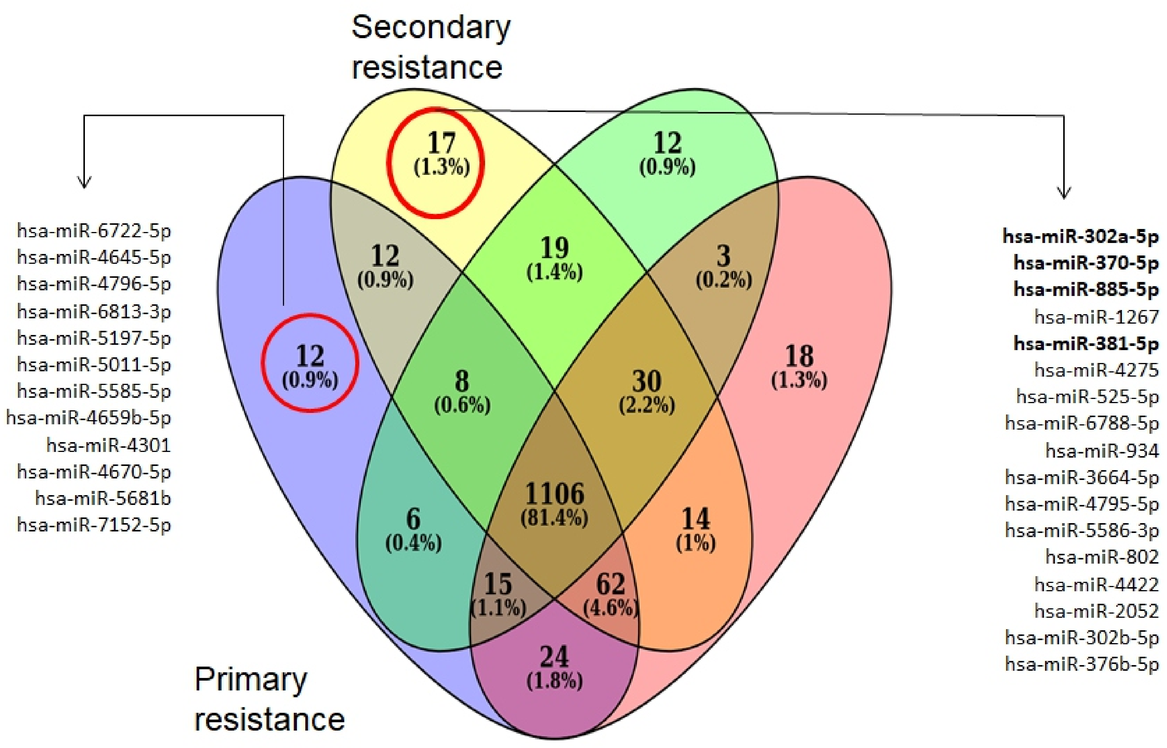

Figure 3: Venn diagrams – 12 miRNAs only expressed in primary resitance group nad 17 miRNAs only expressed in secondary resistance.

CONCLUSION

As far as we know, this is the first report comparing those groups from an epigentic approach.

Projeto Gráfico: Área de Edição e Produção de Materiais Técnico-Científicos / INCA

MINISTÉRIO DA SAÚDE