Ivermectin in Combination with Cytarabine and/or Daunorubicin for Treatment of Lymphoid Malignancies

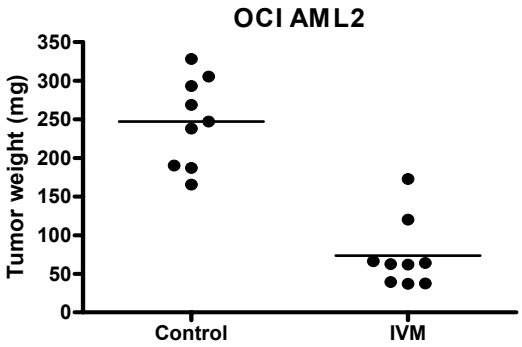
Overview of Technology:

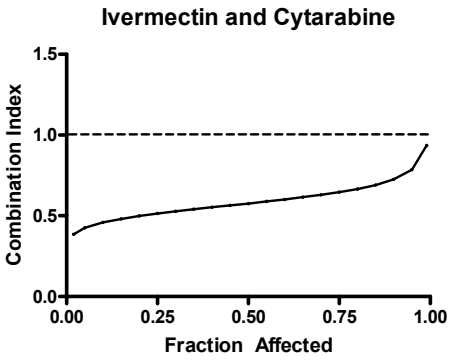
Acute myeloid leukemia (AML) and multiple myeloma (MM) are malignant diseases resulting in the proliferation of abnormal cells of myeloid and lymphoid origin, respectively. Both diseases are characterized by poor responses to standard therapies. For example, elderly patients with either AML or myeloma and poor risk cytogenetics have a median survival of less than one year. Thus, for these patients and those with relapsed refractory disease novel therapies are needed. As many of these patients are frail, therapies that achieve an anti-myeloma or anti-leukemia effect without significant toxicity are highly desirable.

A high throughput screen identified the anti-parasitic agent ivermectin inducing cell death at low micromolar concentrations in four leukemia lines. Subsequently, the researchers demonstrated that this compound reduces tumour growth in mouse xenograft and that ivermectin, in combination with cytarabine or daunorubicin, synergically induces cell death in leukemia cells.

The use of ivermectin in combination with cytarabine or daunorubicin, existing drugs used to treat leukemia, provides novel treatments for hematological malignancies, such as AML.

Figure: Effect of ivermectin on tumour growth in mouse xenograft (*left*) and in combination with cytarabine in OCI-AML2 cells represented as the fractional effect in which 1 is equal to 100% inhibition (*right*).





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