



MEASURE WHAT REALLY MATTERS

AroCell TK 210 ELISA (cat# 10-210)

Thymidine Kinase 1 Immunoassay

Cell Proliferation Biomarker

In Vitro studies of solid tumors and hematological malignancies

- **Standard Microtiter ELISA for Thymidine Kinase 1 (TK1)**
 - **Biomarker of cell proliferation**
 - ***In vitro* and clinical research studies – Translational biomarker**
 - **TK1 may provide information on drug mechanisms**
 - **Unique sample preparation releases TK1 from aggregates**
 - **Good correlation with TK activity assays in leukemia research**
 - **Improved sensitivity for TK1 for solid tumors**
 - **Applicable to many tumors**
 - **More specific than activity assays**
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Thymidine Kinase 1

Thymidine Kinase 1 (TK1) is a key enzyme in DNA replication and the presence of TK1 is a powerful indicator of active cell proliferation.

Thymidine Kinase 1 (TK1) has been long known as a valuable biomarker of cellular proliferation. Elevated levels of serum TK1 enzyme activity is found in subjects with many forms of cancer including leukemia, lymphoma, prostate, breast, lung, sarcoma, and colon.

However, previous methods have been based on enzyme activity measurements that are complex, subject to interferences, and underestimate the serum TK1 found in subjects with solid tumors. A sensitive and specific TK1 immunoassay can meet these challenges.

The AroCell TK 210 ELISA Kit

Serum TK1 exists as many forms with differing molecular weights and enzyme activities, leading to potential underestimation using enzyme activity methods. Also, much of the serum TK1 in subjects with solid tumors has been enzymatically deactivated and found as multimeric aggregates.

However, all TK1 express the TK 210 epitope. The AroCell TK 210 ELISA kit, based on monoclonal antibodies specific to TK 210, enables their detection. Furthermore, the unique sample dilution buffer breaks up the high molecular weight TK1 complexes, allowing complete TK 210 detection, leading to greater consistency between samples.

The AroCell TK 210 ELISA kit is a standard microtiter ELISA providing same-day results. Each kit is sufficient for a standard curve, control, and 40 samples in duplicate. All necessary components are provided.

AroCell TK 210 ELISA and *In Vitro* Studies of Drug Effects

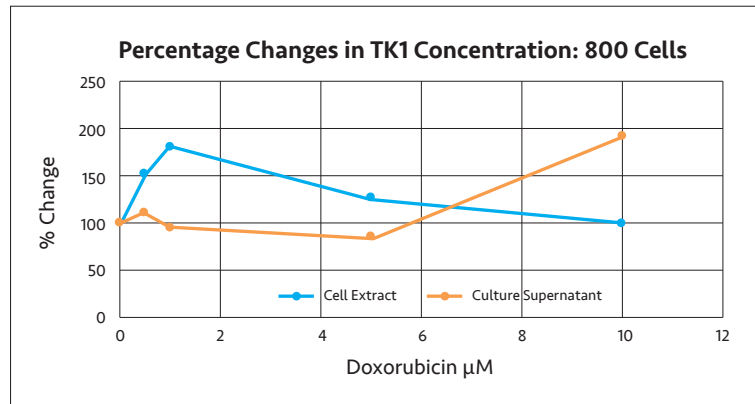


Figure 1

The figure illustrates the changes in intra-cellular TK1/TK 210 and in the supernatant of cultures exposed to various doses of doxorubicin for 24 hours. The cells were cultured and treated in microtiter plates and lysed using a RIPA buffer. The extracts were assayed following the standard AroCell TK 210 assay procedure.

Doxorubicin causes DNA damage; note the initial increase in TK1 content, perhaps an attempt to repair the DNA. At higher doses, cell death occurs.

The AroCell TK 210 ELISA Kit in Studying Drug Effects *In Vivo*

Increased Sensitivity in Comparison with TK1 Enzyme Activity Assays

Much of the serum TK1 found in subjects with solid tumors is enzymatically inactive and found in aggregates leading to underestimation of TK1 and lower sensitivity. Because of this, TK1 has not been widely used to study solid tumors. However, all TK1 express the TK 210 epitope. Figure 2 shows the distribution of TK1 activity and the presence of the TK 210 epitope in serum from a subject with prostate cancer. The strong expression of low molecular weight TK1 complexes with low enzyme activity is clearly shown. The AroCell TK 210 ELISA kit detects all the TK1 complexes, leading to greater sensitivity and potential clinical value.

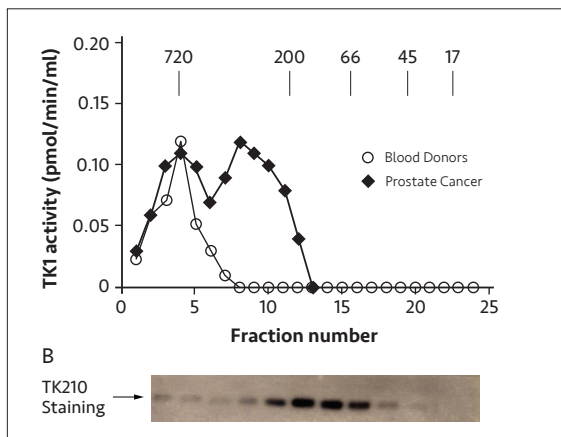


Figure 2

Comparison of Radioenzymatic assay and AroCell TK 210 ELISA³.

Note presence of TK 210 in fractions 14 onwards where there is no TK1 activity.

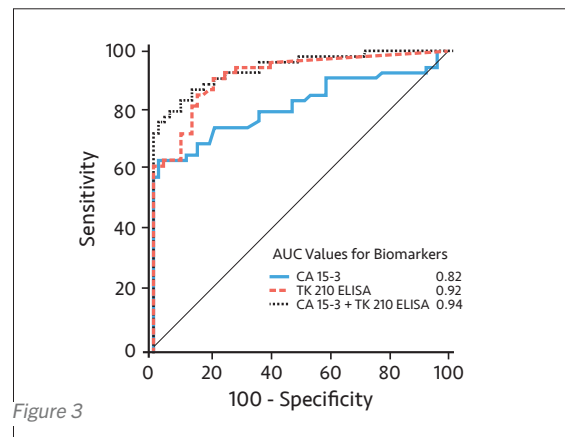


Figure 3

Figure 2

TK 210 ELISA and CA 15-3 values in subjects with T2 stage breast cancer.

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