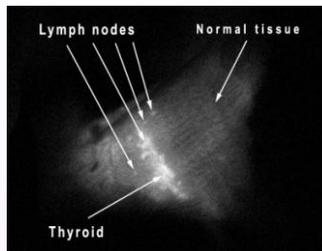


Nano-molecules enhance selectivity for cancer therapy.

Photodynamic therapy has been accepted worldwide as a viable treatment for controlling cancer but the currently approved photosensitizers leave much to be desired. Skin localization and poor differential selectivity hamper the effectiveness of current treatment.

The “leaky vasculature limited lymphatic perfusion trap” has been known as a method of improving localization of therapeutics to tumours for decades, but it has not been widely used due to the difficulty of creating and manufacturing nano-molecules which penetrate cancer cells.

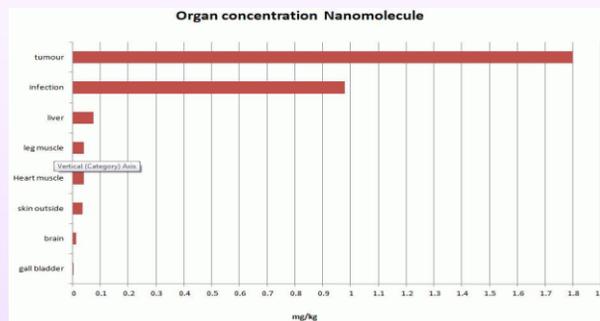
A new nano-molecule has been designed in Australia which enhances the selectivity of proven photosensitizers, reduces skin localization and will readily transfect cancer cells.



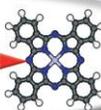
Excellent selectivity in a cat with thyroid cancer lymphatic involvement.

INodes as small as half a millimeter can be seen.

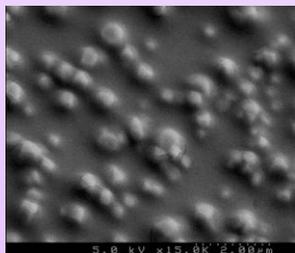
Improved selectivity will allow deeper treatment.



Cytoluminator
Research Pty Ltd



Our proprietary nano-molecule creates uniform 25 - 35 nano-meter molecules ideal for cancer

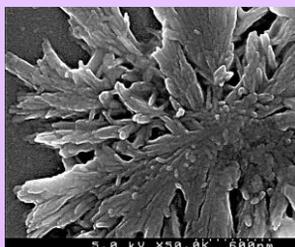


At low concentrations the nano-molecules clump into multiples of 1 to 10 particles.

It appears the lowest common denominator is 25 nano-meters.

As concentration is increased individual particles aggregate into tubules which are rather uniform 25 – 35 nano-meters in size.

This size is ideal.



The molecule used for our nano-molecular shell has a net cationic charge, which aids in selectivity.

Due to the structure used, cancer cells see this molecule as a food source and accept it eagerly.

Once inside the cell, the shell is metabolized and this frees the sensitizer for intracellular localization.

Use of the shell improves the uptake by cancer and reduces undesirable uptake in normal tissue.

Preliminary testing indicates that this technology will at least triple the effectiveness of this therapy.

Penetration depth increases significantly, healthy tissue damage is all but eliminated, and the period of light avoidance is reduced dramatically.

Reference:

Title: **Bio-nanotechnology and photodynamic therapy— State of the art review**

Authors: R.R. Allison, H.C. Motaa, V.S. Bagnatob, C.H. Sibata PhD

Publication: **Photodiagnosis & Photodynamic Therapy 2008 5**