

## ART/TECHNOSCIENCE ENGAGES CANCER RESEARCH

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I envision using art to bring an inventive, exploratory interface charged with fantasy and wonder to cellular and intracellular cancer research. The present-day reductionist scientific approach to cancer treatment is to radiate and kill the cancer cell. When I observe cancer cells under a light-powered microscope—not as a scientist, but as an artist—I see rivulets and streams of healthy tissue being usurped, twisted and pulled into aggressively charged striations of physiological horror, but I also see an odd kind of chaotic beauty. Is there another way to observe this indeterminacy and disorder, this prolific growth of infinite space? What if, through nanotechnology, science and art were joined in order to engage cellular mechanisms in a kind, loving, aesthetic and wondrous exploration?

With the development of nanotechnology, art can now be composed in a microscopic environment, thereby intertwining the macrocosm and the microcosm and incorporating once-invisible energies into a malleable interface where visible and virtual possibilities yet unseen in the history of Western science can begin to take

place. The macroscopic imagery and interfaces of the mechanistic, classical worldview of wheels, pulleys, levers, bridges, aqueducts and canals thus become a nano-microscopic interface of channels, pipes, nano-tubes, cantilevers and switches.

A dynamic new nano-interface is being created in which raw biological material such as cancer cells can be interpreted in open and inventive ways and can be intuitively and viscerally engaged by artists as well as scientists. The natural fluids in biological organisms provide a wonderfully dynamic canvas on which to paint. Nano-fabrication allows the artist to use pairs of laser beams (called optical tweezers) to assemble, render, trap and manually maneuver microscopic nano-structures composed of acrylic beads  $10^5$  microns in size in very much the same way that an artist would move a graphite pencil or paintbrush when drawing or painting on a more conventional canvas. These structures could be placed outside the cancer cell and then inventively maneuvered—as in the motions of painting or drawing—to aesthetically engage the chemical signaling between the nanofabricated structures outside the cell and the chemical signaling within. By the artist's aesthetic use of the laser beams maneuvering these nano-architectonic structures, the artist's intentions, interests and being become an integral part of this nano-biological interface.

I in no way mean this as some grandiose vision of a cancer cure or magic bullet treatment; I do strongly intend, however, to anchor aesthetic experience and activity in an interface where artists and scientists can merge and engage their art/technoscience research with cancer research. This micro-interface would be a postmodern rendering of the traditional eye-hand macro-interface. This kind of art would bring aesthetic experience into scientific experimentation and discovery, such that aesthetic experience would become an actual part of the experimental design, and art an integral and critical part of exploring nature. If we can explore art with experimental images and discover new ways of bringing images from isolated disciplines into compound pictures (as in Color Plate D No. 1), we can stimulate our minds into ordering our art/science disciplines in more integrated forms, and we can develop experimental scientific designs of which the interests, intentions, experience and aesthetics of artists will become integral parts.

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