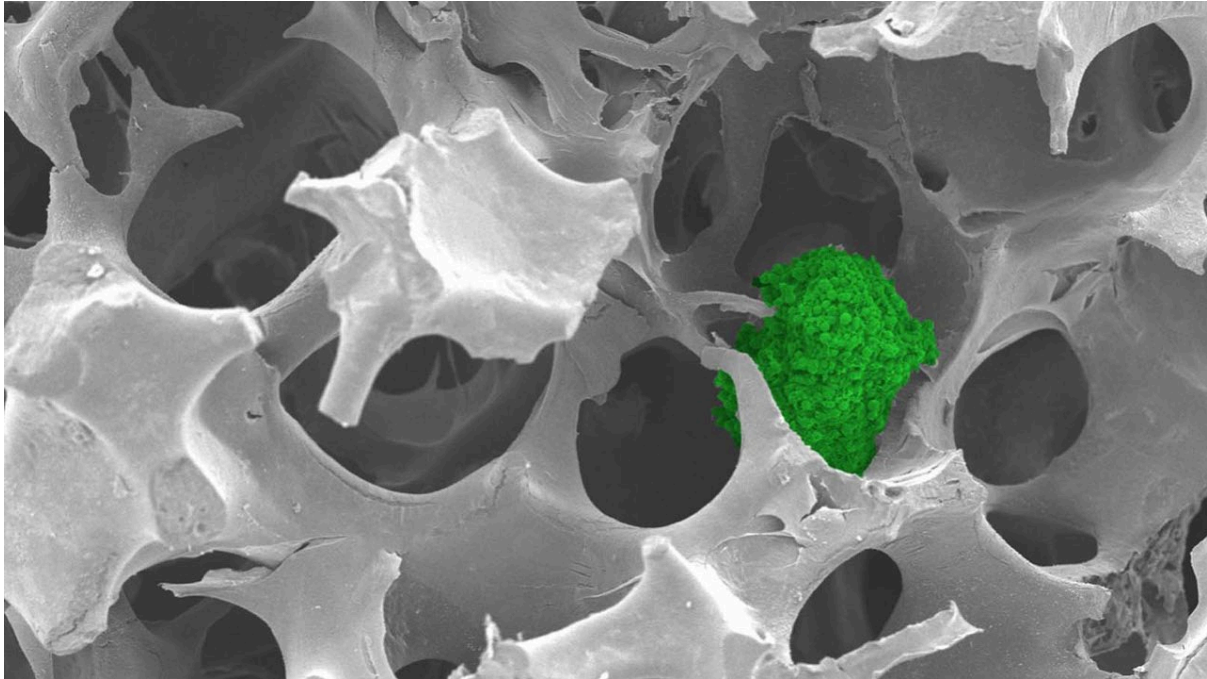


## End-of-life Plastic Gives Birth to Cell Clusters

31 July 2024

Norbert Sparrow



A cancer spheroid (green) grows in the matrix. Image courtesy of NTU Singapore

Researchers at Singapore's Nanyang Technological University (NTU) are exploring novel ways to repurpose plastic waste derived from devices such as keyboards and laptops for medical research, among other applications. One recent example is the use of acrylonitrile butadiene styrene (ABS) from end-of-life keyboards to produce a synthetic matrix to culture cells.

The matrix is formed by dissolving plastic scraps from discarded keyboards in an organic solvent and pouring the solution into a mold. The resulting matrix is porous like a sponge and functions as a support structure, providing a framework for cells to attach and grow, explained the researchers.

Spherical clusters of cells, called cancer spheroids, are cultured in the structure. Because of their three-dimensional shape, these cell clusters reportedly are a more accurate representation of tumors than conventional cell cultures.



Pellets incorporating recycled ABS resin. Image courtesy of NTU Singapore.

The matrix has supported the growth of breast, colorectal, and bone cancer spheroids. Their properties are similar to cancer spheroids grown by commercially available matrices and may be used for biomedical applications such as drug testing, said the researchers.

“Our innovation not only offers a practical means to reuse e-waste plastics but could also reduce the use of new plastics in the biomedical industry,” said Associate Professor Dalton Tay of NTU’s School of Materials Science and Engineering, who led the research.

A [paper](#) on the research was published earlier this year in *Resources, Conservation & Recycling*.

<https://www.plasticstoday.com/medical/end-of-life-plastic-gives-birth-to-cell-clusters>