

## **MATERIALS, TECHNOLOGIES, RESEARCH – MTR LTD.**

### **PROJECT HISTORY of MTR LTD. in BIOMEDICINE**

#### **Application of the Highest Purity SUBLIMED C60 Fullerenes**

##### **1997-1998**

**Washington University School of Medicine, MO USA Dr.**

**Laura Dugan et al.**

MTR started the cooperation for synthesis of the novel Water-Soluble C60 Carboxy Fullerenes, a powerful neuroprotective agent for treatment of Neurodegenerative Disorders, including Parkinson's Disease.

##### **1999**

**C Sixty, Inc., Canada – USA**

Dr. Richard Smalley (Nobel Laureate in Chemistry in 1996: Discovery of C60),  
Dr. Stephan Wilson, Dr. Uri Sagman

MTR began Business and Research Collaboration with C Sixty, Inc., the first biopharmaceutical company focusing on Fullerene C60 for the development of a new class therapeutics.

##### **2001**

**MER Corp., USA – Mitsubishi Corp., Japan – FIC, USA**

MTR started a cooperation with MER Corp., USA and Mitsubishi Corp., Japan and formed a new international Company – FIC (Fullerene Intern. Corp.), USA for the Participation in mutual biomedical projects.

##### **2002-2004**

**C Sixty, Inc., USA – ChemPacific Corp., USA**

MTR started supplying bulk amounts of the Highest Sublimed C60 purity to C Sixty, Inc., USA) for the Scale-up manufacturing of different series of fullerene C60 Products.

## **2003-2004**

### **“National Institute for Materials Science “, Tsukuba, Japan**

Prof. Kunichi Miyazawa et al.

MTR started a long-term cooperation for the synthesis:

New Unique Class of Fullerenes Compounds – C60 Nano Whiskers

Nano Whiskers possess an extremely wide range of applications, including, biocompatible materials with low cytotoxicity for application in BIOMEDICINE: drugs delivery, biosensors preparation, diagnosis, and treatment of major ailments such as Cancer, Heart, Lung, and Blood Diseases.

## **2006-2007**

Per the contract terms, MTR supplies bulk amount of C60 Fullerene products to Mitsubishi Corp, and Vitamin C60 BioResearch Corp, Japan.

Long-term partnership continues with FCC (Frontier Carbon Corp.), Japan to produce the highest purity of the Sublimed C60 Fullerene.

## **2008-2014**

MTR established a business cooperation with The Bronx Project, Inc. USA for the commercialization of anti-aging (antioxidant) Water-Soluble Fullerene C60 Derivatives for pharmaceutical applications.

## **2013-2014**

The Synthesis of a New Generation of HIGHLY WATER-SOLUBLE (>> 100g/L) begun. Fullerenes C60: Super PolyHydroxylated Fullerenes C60(OH)<sub>n</sub> (n=40-44)

Powerful antioxidant with the Highest Radical Scavenging Reactivity

<https://downloads.hindawi.com/journals/jnm/2014/802596.pdf> . Successful

application in BioMedicine, Cosmetics, and Nano-Photonics: Production of a New Generation of Optical, including Soft Contact Lense.

## **2015-2016**

MTR started to mass produce the highest purity of SUBLIMED Fullerenes C60 for the biomedical application of anti-aging Nutritional Supplements.

## **2018**

Production of Sublimed C60 for anti-aging quantum light therapy and for “Tesla Boiptron C60 Quantum Hyperlight Nano-Photonic Optics”

<https://teslaglasses.co.nz>

## **2019-2022**

Supply MTR’s Highest Purity Fullerenes Products for Advanced Biotechnological Projects, including:

“Self-Assembled Fullerene Crystals as Excellent Aromatic Vapor Sensors “  
Sensors, 19(2), 267, 2019 (Pharma, Food and Cosmetics Industry)

“Functionalized Fullerene Gel Tumor Treatment “WO2020243390A1  
(The Gel Compositions for Tumor Treatment by Laser Light – Medicine, Clinical Medicine)

The Design a new BioMaterials in Regenerative Stem Cell based Therapies  
Am.Chem.Soc. Appl.Nano Mater., 3(6497-6506), 2020 (Regenerative Medicine)

“Carbon NanoMaterials Promote M1/M2 Macrophage Activation “  
Small, 16(21), 2020 (Advanced Science News)

“Fullerenes to Treat Diseases and Conditions “Publ.# 20210378982

“Metallofullerenes in BioMedical Applications “- Europ.J.Med.Chem., 238,2022

## **MTR's Gd – EndoMetalloFullerenes (Gd – EMFs)**

### **BIOMEDICINE**

MTR has been globally manufacturing and supplying the highest purity of Gd-EMFs, acting as a powerful MRI contrast agent, with an effective antioxidant and anti-tumor activity to leading biomedical centers, including but not limited to:

- National Institute of Health, Bethesda, USA
- Cleveland Clinic Foundation, USA
- McKnight Brain Institute, USA
- Oxford University, UK
- Toshiba Corporation, Japan
- California Institute of Technology (Caltech), USA
- University of Tsukuba, Japan
- German Cancer Research Center