

ONCOSOMES IN CANCER AND TREATMENT RESPONSE

What are Oncosomes?

Oncosomes are extracellular vesicles (EVs) released by cells. While they are present in both normal and cancerous cells, cancer-derived oncosomes are typically larger, more abundant, and carry oncogenic material such as mutated DNA, tumor-promoting RNAs, and abnormal proteins.

Why They Matter

Oncosomes serve as non-invasive biomarkers detectable in blood (“liquid biopsy”) and reflect tumor activity, progression, and response to therapy

Key Differences

Feature	Normal Vesicles	Cancer Oncosomes
Size	30 - 1,000 nm	Up to 10um (larger)
Cargo	Normal proteins & RNAs	Oncogenic DNA, tumor-promoting RNAs
Function	Repair, communication	Tumor spread, immune suppression
Clinical Use Limited		Biomarker for diagnosis & treatment monitoring

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Effect of Treatment

Chemotherapy

- Initial spike in oncosomes (stress response)
- Decline if treatment is effective
- Stay high or rise if treatment is ineffective

Radiation

- Early spike (DNA damage response)
- Gradual decline if tumor controlled
- Persistently high counts = treatment resistance

Timeline of Oncosome Counts

Before Treatment:	Baseline levels
Early Treatment:	Spike in release
Effective Response:	Decline as tumor shrinks
Ineffective Response:	Remain high or increase

Bottom Line

Oncosomes = **Real-time indicators** of tumor biology

Rising counts → **Stress or progression**

Falling counts → **Effective treatment**

Strong potential for **precision oncology** and **treatment monitoring**

ONCOSOME REPORT: NORMAL VESICLES VS. CANCER-DERIVED ONCOSOMES

Introduction

This report provides a structured comparison between normal extracellular vesicles (EVs) and cancer-derived oncosomes. It also explains how chemotherapy and radiation treatments influence oncosome release and levels.

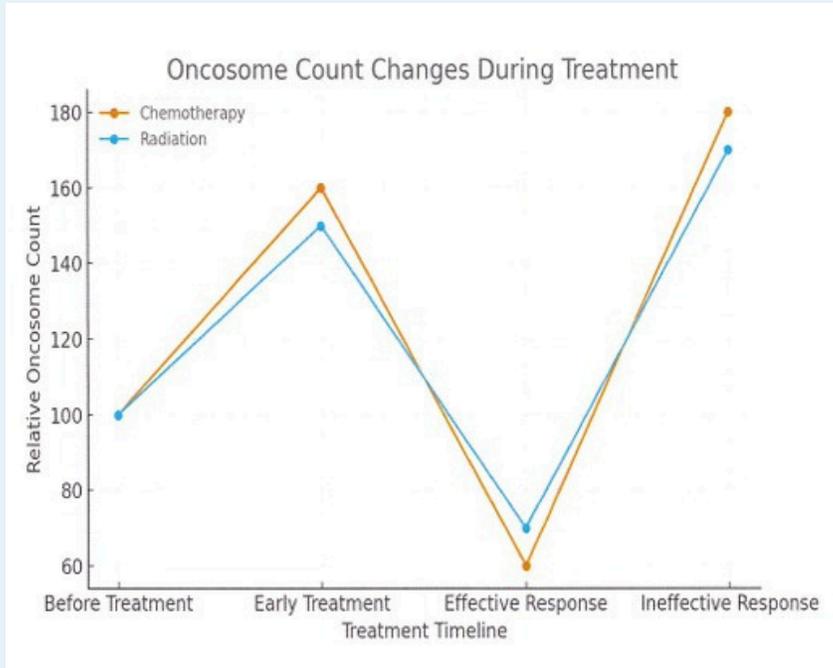
Oncosomes are increasingly studied as non-invasive biomarkers, detectable in blood samples, that may help track cancer progression and treatment effectiveness in real time.

Timeline of Oncosome Counts

Feature	Normal Vesicles	Cancer Oncosomes
Who produces them?	All healthy cells	Cancer cells (especially aggressive tumors)
Size	Exosomes: 30-150 nm Microvesicles: 100-1,000 nm	Large Oncosomes: 1-10 um
Molecular Cargo	Normal RNAs, proteins for repair	Oncogenic DNA, mutated proteins, tumor-promoting RNAs
Surface Markers	CD63, CD81, CD9	Tumor antigens (EpCAM, PSA, MUC1, HER2, EGFRvIII, etc.)
Function	Communication, repair, immune regulation	Tumor spread, angiogenesis, immune suppression

ONCOSOME REPORT: NORMAL VESICLES VS. CANCER-DERIVED ONCOSOMES

Treatment Effects on Oncosome Counts



Treatment: Chemotherapy

Minimal impact on normal vesicles. Temporary spike in oncosomes (stress response); decrease if treatment is normal.

Treatment: Radiation

Damaged tissues may release some vesicles (inflammatory). Temporary spike (DNA damage response); decrease if tumors are controlled

Summary & Conclusion

Both normal cells and cancer cells release extracellular vesicles, but cancer-derived oncosomes are larger and carry oncogenic mutations and tumor-promoting signals.

Tracking oncosome levels offers a powerful non-invasive tool for cancer diagnosis and monitoring.

Chemo and radiation usually cause an initial rise in oncosome counts, followed by a decline if treatment works.

Persistently high or rising counts may signal treatment resistance or ongoing tumor activity.

Overall: Oncosomes are a promising biomarker for precision oncology, giving real-time insights into tumor behavior and therapeutic effectiveness

WHY DOCTORS SHOULD RECOMMEND ONCOSURE TESTING

Early Detection & Risk Assessment

- Oncosure testing identifies cancer-associated oncosomes and biomarkers circulating in the blood
- Provides a non-invasive early warning system, often before symptoms or imaging changes appear
- Enables doctors to intervene earlier, improving patient outcomes

Timeline of Oncosome Counts

- Unlike biopsies, which are invasive and carry risks, Oncosure is based on a **simple blood draw**
- Can be repeated frequently without burden to the patient
- Minimizes complications, recovery time and patient anxiety

Timeline of Oncosome Counts

- Tracks oncosome counts and cargo during chemotherapy or radiation
- Detects whether treatment is working:
 - Declining levels → Tumor responding
 - Rising/persistent levels → Resistance or progression
- Provides insights weeks to months earlier than imaging or symptoms

WHY DOCTORS SHOULD RECOMMEND ONCOSURE TESTING

Precision Medicine Tool

- Helps personalize therapy by showing how each individual's tumor responds
- Reduces unnecessary exposure to ineffective drugs or treatments
- Guides oncologists in adjusting treatment plans promptly

Improved Patient Experience

- Less invasive and stressful compared to repeated biopsies or scans
- Offers rapid results, giving patients and doctors timely answers
- Enhances patient confidence and engagement in their treatment journey

Clinical Value for Physicians

- Support evidence-based decision-making
- Adds a valuable tool for risk stratification, diagnosis, and prognosis
- Differentiates physicians and clinics as being at the forefront of innovative cancer care