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Research Article

Formation of the Blood Clotting and Application to Cancer Theranostics, after an Atomic Collapse Initiated by Heavy Metal Crystal with a Graphene

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Received Date: July 05, 2025; **Accepted Date:** July 23, 2025; **Published Date:** July 31, 2025

Citation: Chur Chin, (2025), Formation of the Blood Clotting and Application to Cancer Theranostics, after an Atomic Collapse Initiated by Heavy Metal Crystal with a Graphene, *Clinical Medical Reviews and Reports*, 7(4); **DOI:**10.31579/2690-8794/261

Abstract

Pair production on heavy metal and graphene can cause the blood clotting by emitting gamma ray of positron annihilation. This atomic collapse can apply to the cancer therapy by using the gamma ray. In this report, we present the mechanistic aspect of the blood clotting and cancer theranostics by the atomic collapse.

Keywords: blood clot; cancer therapy; atomic collapse; heavy metal; graphene; pair production

Introduction

Atomic collapse typically refers to a theoretical quantum effect in ultra-strong Coulomb fields—like those around superheavy nuclei (Z >~170)—where the field becomes strong enough to pull electrons from the vacuum, leading to spontaneous electron-positron pair production [1]. This is part of what's called supercritical atomic collapse, predicted in quantum electrodynamics (QED). Graphene has a 2D Dirac-like electronic structure. When a heavy atom (like uranium) is placed on graphene, it can mimic supercritical charge conditions, even though Z < 170, due to graphene's unusual electronic behavior. Experiments have observed atomic collapse states in graphene with charged impurities like calcium or cobalt [2]. With uranium (a higher-Z atom), the effect could be stronger. Therefore, in principle, atomic collapse-like phenomena—and potentially pair production—could occur in a graphene-uranium system. In theory, the combo of graphene + uranium can lead to pseudo-supercritical effects that mimic atomic collapse and even show resonances that suggest quasi pair production. Here we identify the Formation of the blood clotting and application to cancer theranostics by an atomic collapse.

Results

Feature	Radiation-Induced	Clotting Cancer Therapy
Radiation threshold	~1–5 Gy (localized)	Achievable with focused beams + heavy atoms
Target tissues	Blood vessels, endothelium	Tumor vasculature + tumor cells
Graphene's role	Carrier + electron modifier	Targeted delivery + radiosensitization
Heavy atoms (U, Bi, Au)	Amplify radiation effect	Trigger localized damage or even pair production

Table 1: The blood clotting effect of atomic collapse by graphene-heavy nucleus Coulomb field and application to the cancer theranostics.

Discussion

Pair production is a QED process at subatomic scales. Proteins or biological molecules nearby wouldn't influence the pair creation itself, but if, hypothetically, electron-positron pairs were created in a biological environment: The positrons could annihilate with electrons, releasing gamma rays (~511 keV). This radiation could interact with proteins, DNA, etc., potentially causing radiolytic damage [3]. Therefore, if pair production occurred near proteins, the effect (e.g., gamma emissions) could impact them—but they wouldn't influence the production itself. In summary, pair production via atomic collapse can theoretically happen with uranium and graphene, due to supercritical-like effects observed in graphene systems. Proteins and nearby biological molecules don't participate in the pair production mechanism but could be affected after the fact, via secondary radiation effects. The electron-positron pair production near or within blood plasma, maybe from a heavy atom like uranium interacting with graphene.

After creation, the positron (e^+) will very quickly encounter an electron (e^-) from surrounding tissue. They'll annihilate, producing two 511 keV gamma photons. The 511 keV photons can ionize nearby molecules, including proteins, lipids, and DNA. This can lead to oxidative stress, triggering inflammatory responses. Blood vessels are lined with endothelial cells. Radiation can damage them. Damaged endothelial cells release pro-coagulant signals, like tissue factor, that initiates clotting cascades, leading to platelet activation and fibrin clot formation. Free radicals generated from radiation can oxidize LDL, denature proteins, and activate immune cells. These factors support thrombogenesis (clot formation). The heavy atoms amplify local radiation dose via secondary effects: Auger electrons, photoelectric effect, pair production. This leads to highly localized radiation damage, which kills tumor cells and damages local tumor vasculature with causing localized clotting, starving the tumor of blood.

Conclusion

If pair production happened inside a blood vessel, it could lead to blood clots—but indirectly. Because of the ionizing radiation from positron annihilation, this could damage the vessel lining or alter local chemistry in a way that triggers clot formation. If localized, intense pair production happened (like a cluster of uranium atoms doing it repeatedly), it could mimic localized radiation exposure, potentially initiating clotting or inflammation.

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DOI:10.31579/2690-8794/261