

MD/PhD Essay Example

Prompt: Why do you want to pursue a combined MD/PhD degree? | Field: Oncology

What this essay does: Opens with a specific clinical moment, not a general statement of passion. Traces a clinical observation directly to a molecular research question. Makes the 'why both degrees' argument explicitly in the final paragraph. Avoids the common failure of treating medicine and research as parallel interests rather than intersecting necessities.

In the spring of my junior year, I was shadowing Dr. Priya Mehta in the gastrointestinal oncology clinic at UCSF Medical Center when a 58-year-old patient arrived for what should have been a routine three-month follow-up after completing FOLFOX chemotherapy for stage III colorectal cancer. His imaging showed new liver lesions. Dr. Mehta explained to him, carefully and honestly, that his cancer had become resistant to the treatment that had initially worked. I watched her walk him through second-line options and observed the particular kind of difficulty that comes from offering treatments that carry significant toxicity for uncertain benefit. After the appointment, I asked her how often this happened. She said: "Often enough that it keeps me up at night."

The question I left that clinic with was specific: why do colorectal tumors that respond to oxaliplatin-based chemotherapy develop resistance within six to twelve months, and is that resistance predictable from molecular features present at diagnosis? The literature I reviewed afterward suggested that resistance mechanisms involving ERCC1 overexpression and KRAS amplification were partially characterized but not yet clinically actionable. There was no validated biomarker panel that an oncologist could use at the time of diagnosis to predict which patients would develop resistance and at what timepoint. That gap is what I want to close.

Closing it requires tools that clinical medicine alone does not provide. Functional genomics assays, patient-derived organoid models, and longitudinal ctDNA sequencing are not part of oncology residency training. They are, however, central to the research being conducted in Dr. Scott Bhatt's laboratory at Johns Hopkins, where I have worked for eighteen months characterizing ERCC1 isoform expression patterns in colorectal cancer cell lines and patient tumor samples. That work has given me the technical skills to pursue the question and shown me exactly why a PhD is necessary: the answer requires years of sustained experimental investigation, not a series of retrospective chart reviews.

But treating the patients who carry those tumors requires clinical training that a PhD alone does not provide. The question I am pursuing is fundamentally translational: I want to build a biomarker that an oncologist can order before initiating FOLFOX therapy. To do that work well, and to have it actually

reach patients, I need to understand clinical workflows, patient communication, and treatment decision-making from the inside. I need both degrees, in sequence, with the laboratory work informing the clinical questions and the clinical experience informing the research design.

I am applying to MD/PhD programs because I want to be in Dr. Mehta's position someday, telling a patient that we knew at diagnosis their tumor carried markers for oxaliplatin resistance, and that we put them on a different protocol for exactly that reason. That conversation requires a clinician scientist. I intend to become one.

