

## The Sidra Medicine Pediatric Precision Oncology Initiative

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## The Sidra Medicine Pediatric Precision Oncology Initiative

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**Introduction:** Sidra Medicine has been the primary pediatric cancer care facility in Qatar since opening its oncology clinic in May 2018. Along with the clinic's opening, the Sidra Pediatric Cancer Registry was created. Our patients are primarily of Arab and Asian ancestry, making up 60% and 32% of our cohort, respectively. Among these patients, 33% are diagnosed with Leukemia, 20% with Central Nervous System malignancies, and other common diagnoses include Lymphoma, Germ cell tumors, Neuroblastoma, and Sarcomas in descending order of incidence.

The Sidra Medicine Pediatric Oncology Initiative started soon after. In this project, we collect materials no longer needed for diagnosis and blood samples throughout their treatment at Sidra Medicine from consented patients as part of our Sidra Cancer Biorepository. Since 2022, the repository also collects stool samples where possible to study the patients' microbiome, and in 2024, we added saliva samples.

**Methodology:** For all patients enrolled in the protocol, we provide expedited Genomic Oncology Profiling (eGOP) of the bulk tumor using 90X/30X WGS for tumors and blood samples, respectively. We also collect tumor methylation and transcriptomic profiles using the EPIC array and RNAseq 50M reads. Clinicians receive a Personal Cancer Genomics Report, a Cancer Predisposition Sequencing Report, a fusion gene report, and for CNS tumors, a methylation-based classification report. From 2024, we also provide a PharmaCAT report for

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pharmacogenomics. Clinical data is extracted and stored alongside the multi-omics data for various research projects. All data from consent to sample collection is stored in an in-house database at Sidra Medicine.

**Results:** As of September 2024, we have received 489 patients, with 178 enrolled in our precision oncology program. The major types of cancer in the Sidra registry are Leukemia (150/52 consented), CNS (106/77), Lymphomas (51/12), Neuroblastoma (33/13), Germ cell tumors (28/23), Soft tissue sarcomas (29/12), and Renal tumors (23/14).