

**Success Stories of Africa-Europe
Research Collaboration in
Personalised Medicine**

THE SALAMA STUDY

Studying Acute Leukemia Mutations in Africa



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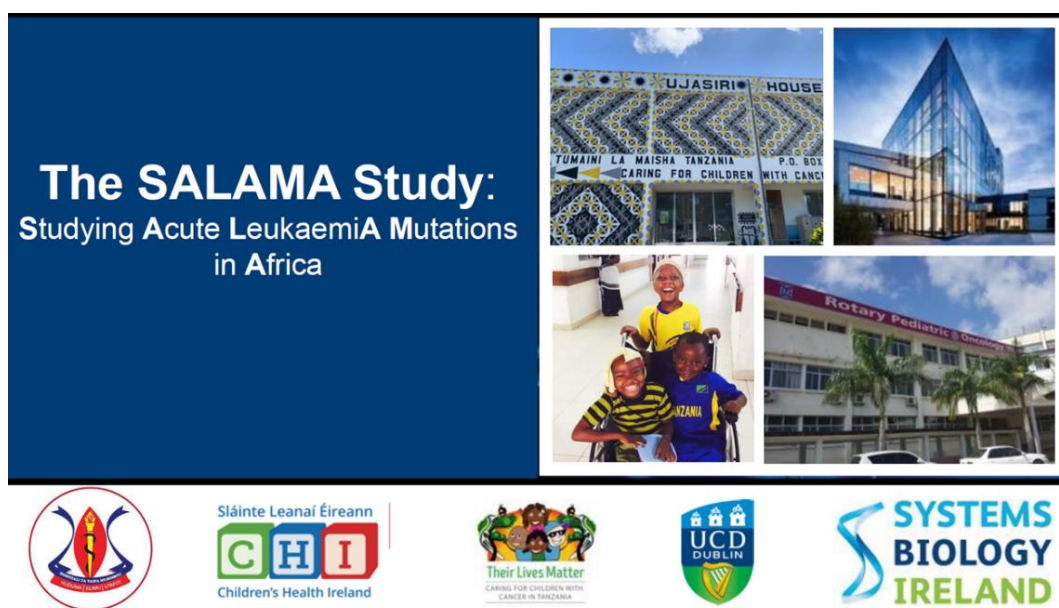


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Executive Summary

The **SALAMA study (Studying Acute Leukemia Mutations in Africa)** is a collaboration between research groups in Europe and Africa to improve the diagnosis and treatment of pediatric acute leukemia through personalised medicine. Specifically, the collaboration focuses on studying the genetic landscape of childhood blood cancers in Tanzania. The partnership, which took off in 2018 has contributed to the overall improvement of various pediatric oncology conditions. Key achievements include the introduction of molecular profiling methods, which have laid the foundation for personalised treatment approaches, although significant challenges related to resource availability have been encountered.



Project Overview

Background

Since 2011, Ireland through the Tumaini la Maisha Foundation, a non-governmental organization, has been supporting pediatric oncology patients in Tanzania. The SALAMA study is part of this collaboration, which was launched to tackle the low survival rates for acute leukemia patients in Tanzania by studying the genetic abnormalities of leukemia subtypes prevalent in African children.



The ethos of SALAMA is centered on closing the gap between countries where cancer treatment has advanced more quickly and lower-income countries where resources,



Success Stories of Africa-Europe Research Collaboration in Personalised Medicine: The SALAMA Study

training, and simple logistics continue to limit treatment options even today. In Ireland, much of the success of modern leukemia treatment is down to understanding the mutations, whether they are low or high risk, and targeting the treatment accordingly. The situation in Tanzania is far from the case. The SALAMA collaboration combined with modern innovations, is envisioned to make the same level of treatment a reality for patients in Tanzania.

Objectives

Africa, particularly low-income countries like Tanzania, has experienced critically low survival rates for pediatric leukemia, mainly due to limited diagnostic and treatment options. By contrast, countries like Ireland have a 90% survival rate for pediatric leukemia patients. Observations of distinct leukemia subtypes in Tanzania versus Ireland motivated the SALAMA study's focus on identifying the genetic differences that could inform new, targeted treatments.

The objectives of the SALAMA Study include:

- **Molecular characterization of acute leukemia:** SALAMA seeks to understand the genetic mutations associated with pediatric leukemia in Tanzania.
- **Improving patient survival:** The project aims to introduce personalised treatment approaches in Africa by correlating genetic findings with clinical outcomes.
- **Establishing the foundation for personalised medicine:** Establish the groundwork for introducing personalised medicine tailored to African patients.

Beginning of the Collaboration and Duration

The [Tumaini la Maisha Foundation](#), a community-based organisation in Tanzania has had active collaboration with Ireland in the field of oncology since 2011. This partnership laid the groundwork for the SALAMA study to improve outcomes for pediatric leukemia patients. The project began in 2018 and is ongoing, with plans for future clinical trials and continued collaborations to strengthen diagnostic and treatment options.

Funding

The SALAMA study is funded by the [Little Princess Trust](#), UK, in partnership with [Children's Cancer and Leukaemia Group](#), UK.








Participating partners

The exciting project brings together partners - Systems Biology, University College Dublin, Children's Health Ireland (CHI) at Crumlin, Muhimbili National Hospital, Muhimbili University of Health and Allied Sciences, and the University of Dodoma. Support also comes from the University of Oxford's SEREN laboratory, which performs molecular analysis, contributing to a stronger research foundation in Africa.

Organisation	Role	Country
 Systems Biology	Coordinator	Ireland
 University College Dublin	Partner	Ireland
 Children's Health Ireland (CHI) at Crumlin	Implementer	Ireland
 Muhimbili National Hospital	Partner	Tanzania
 Muhimbili University of Health and Allied Sciences	Partner	Tanzania
 University of Dodoma	Partner	Tanzania
 SEREN at the University of Oxford	Partner	England

Current organization of the team and key personnel

SALAMA is led by a multi-national team from organizations in Tanzania and Europe. Some of the key figures in the collaboration are as outlined below.

Country	Name
	Jonathan Bond - Professor of Childhood Leukaemia Research, Systems Biology Ireland, and Honorary Consultant Paediatric Haematologist, Children's Health Ireland at Crumlin (Lead investigator).
	Peter McCarthy - Clinical Fellow, Systems Biology Ireland and University College Dublin, and Consultant Paediatric Haematologist, Children's Health Ireland at Crumlin and St. James's Hospital Dublin.
	Koga Luhulla - Hematologist, Muhimbili National Hospital.
	Trish Scanlan - Chief Operating Officer, Tumaini La Maisha.
	Lulu Chirande - Paediatric Oncologist, Muhimbili University of Health and Allied Sciences.
	Anna Schuh - Director of Molecular Diagnostics, Oxford University, who is involved with the social enterprise, SEREN.
	Wendy Tarplee-Morris - Co-founder and Director of Service and Impact, the Little Princess Trust.



Selection Criteria

A selection criteria was used to identify the case studies to ensure they best exemplify the value of EU-Africa collaborations in Personalised Medicine (PM). The criteria include relevance to personalised medicine; active and sustained collaboration between European and African research institutions; diverse geographical distribution; funding sources; research impact; and other results and impacts. Below is an outline of how the SALAMA Study meets the criteria.

Criterion	Description
Relevance To Personalised Medicine	Mutational profiles are based on High-Income countries (HICs) populations - direct extrapolation of clinical practice from HICs to Low- and Middle-income Countries (LMICs) may not be appropriate. The SALAMA Study is profiling the mutational genotype of leukemia in the Tanzania children population and gaining a deeper insight into downstream molecular consequences of variants identified.
Active And Sustained Collaboration Between European And African Research Institutions	The SALAMA study builds on foundational work by Tumaini la Maisha (TLM), an Irish organization supporting pediatric oncology in Tanzania since 2011. TLM's groundwork facilitated a strong partnership network, bringing together European institutions like Systems Biology Ireland, University College Dublin, and Oxford's SEREN lab, alongside Tanzanian institutions including Muhimbili National Hospital and Muhimbili University of Health and Allied Sciences. These partnerships have collectively advanced Personalised Medicine for pediatric leukemia in Tanzania, combining European technological expertise with African clinical knowledge to address critical health disparities.
Diverse Geographical Distribution	<ul style="list-style-type: none"> - East Africa: Tanzania. - Europe: Ireland and the UK (funding support).
Funding Sources	Irish Research Council Award No. GOIPG/2021/1026, Children's Cancer and Leukemia Group, and The Little Princess Trust fund.
Research Impact	<ul style="list-style-type: none"> - Improve the knowledge of the genetics of childhood leukemia patients in Tanzania. - Provide information concerning potential targeted treatment.
Other Results and Impacts	<ul style="list-style-type: none"> - Improve the treatment options based on genetic and system biology analysis of patients. - Inform the design of Tanzanian-specific sequencing panels. - Capacity building, shared learning, and exchange.

Innovative Approach

The study leverages genomic and transcriptional profiling to identify genetic mutations in Tanzanian leukemia cases, enabling data-driven, personalised treatment planning.



Main Challenges of the Collaboration

Resource limitations in Tanzania have posed challenges, including restricted access to advanced genetic tests and the need for local infrastructure to support Personalised Medicine.

Key Milestones So Far

Although no immediate breakthroughs have been achieved, the SALAMA study's molecular profiling of leukemia cases in Tanzania is a foundational step toward introducing personalised medicine in the region. Efforts so far have been able to achieve the milestones below:

- **Genomic analysis:** Identified differences in leukemia subtypes between Tanzanian and Irish patients.
- **Data integration:** Created a robust dataset that can be used for future personalised treatment planning. The team will use computational research approaches like machine learning/artificial intelligence to understand these data.
- **Future clinical trials:** The groundwork has been laid for clinical trials aimed at introducing personalised medicine in Tanzania, a critical step forward.

Expected Impact of the SALAMA Study

The SALAMA study is expected to lead to clinical trials that will assess patient responses to targeted therapies, enhancing survival rates and supporting a sustainable future for pediatric oncology in the region.

Advancing the Field of Personalised Medicine through SALAMA

From an African Perspective: The study aims to bridge the healthcare gap by enabling access to personalised treatment options that can significantly improve outcomes for African children.

From a European Perspective: Europe provides technological expertise, resources, and collaborative support to build capacity and foster sustainable personalised medicine infrastructure in Tanzania.

Future steps and Sustainability of the Collaboration

The future direction for the project includes planned clinical trials focused on personalised treatment modalities, continued collaboration to enhance diagnostic and management

capabilities in Tanzania, and the establishment of essential research infrastructure to support future studies in Personalised Medicine.

Acknowledgments

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Appendices: Photos

All photos courtesy of **WeAreTLM**.



