

## Emmaus Life Sciences – Company Overview

Emmaus Life Sciences, Inc. is a biopharmaceutical company engaged in the discovery, development and commercialization of innovative treatments and therapies primarily for rare and orphan disease including sickle cell disease.

## Sickle Cell Disease

Sickle cell disease (SCD) is a genetic blood disorder that affects 20-25 million people worldwide and occurs with increasing frequency among those whose ancestors are from regions including sub-Saharan Africa, South America, the Caribbean, Central America, the Middle East, India and Mediterranean regions such as Turkey, Greece and Italy.

The Centers for Disease Control and Prevention (CDC) estimates that there are as many as 100,000 patients with SCD in the United States, and we estimate there are approximately 80,000 patients in the European Union. In regions such as Central Africa, 90% of patients with SCD die by age five and 99% of patients die by age 20.

In all regions, SCD requires ongoing physician care and considerable medical intervention. The overall survival of patients in the United States with sickle cell anemia correlates with the severity of their disease state, especially the number of crises per year.

## Endari™ – A Drug for Sickle Cell Disease

Endari (L-glutamine oral powder) is a prescription oral drug approved by the U.S. Food and Drug Administration (FDA) to reduce the acute complications of sickle cell disease in adult and pediatric patients 5 years of age and older. Endari was approved in July 2017 and was the first treatment in nearly 20 years shown to reduce the acute complications of sickle cell disease in adults when used as directed. Endari is also the first treatment approved to reduce the acute complications of sickle cell disease in children five years and older when used as directed. Endari has received Orphan Drug designation in the U.S., and Orphan Medicinal Product designation in the EU.

## A History of Scientific Discovery – A Pipeline of Innovation

Emmaus is rooted in scientific innovation. Endari, the company's lead product, was developed by Emmaus' Chairman and CEO Yutaka Niihara, MD, MPH. Dr. Niihara began researching the benefits of L-glutamine in 1992 at the Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center. Today Emmaus' product pipeline includes the potential of L-glutamine to treat diverticulosis and diabetes. In addition, Emmaus is researching cell sheet technology for treatment of limbal stem cell deficiency, an orphan indication.

### Headquarters

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