

# Regeneration

CPA aims to become an internationally recognised leader in stem cell and regenerative medicine clinical trials for cerebral palsy (CP), discovering new therapies for prevention, treatment and cures.



**Cerebral Palsy**  
ALLIANCE

RESEARCH FOUNDATION



Stem cells are unique cells that can:

- make copies of themselves
- create different cell types
- influence other cells and tissues around them
- reduce inflammation
- indirectly and directly repair and rebuild tissues

Experts are researching how stem cells could be useful in CP through their ability to protect vulnerable brain cells and preserve their function, help to repair injury, or even support replacement and regeneration of damaged cells.

Researchers are focusing on cells from the placenta, adult tissue like bone marrow, and the brain for the treatment of CP. While research in humans is relatively new, evidence is emerging from early stage clinical trials about the safety and benefits of stem cells.

Presently, many cell types, doses and routes are under investigation. Importantly, we know that stem cells have a role to play in targeting inflammation. Inflammation peaks in the hours and days following a brain injury and, if we can target this process early using stem cells, it will most likely result in better outcomes. However, stem cells may also be useful for treating established CP in children and even adults, since some stem cell types can support brain repair and contribute to reducing overall damage.

## Stem cells for treating cerebral palsy and potential brain repair

Our regenerative research priorities for those living with CP:

### 1. Enable access to umbilical cord blood treatment in Australia

We aim to identify barriers and develop solutions to enable autologous and sibling umbilical cord blood treatment for children with CP in Australia, comparable to that in USA and Europe.

### 2. Establish a Centre for Regenerative Medicine

Our long-term vision is for a Centre for Regenerative Medicine that will be a clinical research and treatment hub where regenerative medicine discoveries can be translated into treatments for a range of brain conditions.

In the meantime, CPA will lead the following clinical trials:

- i) Repeat dose umbilical cord blood for children with CP
- ii) Mesenchymal stem cells for babies at risk
- iii) Neural stem cells for babies with CP

### 3. Engage and empower the CP community to be informed and involved in stem cell research

CPA will produce evidence-based, quality, engaging stem cell and regenerative medicine content for the CP community, to inform, raise awareness and answer questions people with CP and their families may have about stem cell treatments.

We will also continue to grow our Stem Cell Reference Group, and empower members to be more informed and involved in stem cell research, and mobilise key members to become advocates to support other key priorities.

## What regenerative medicine research means for people with CP

Promising early research in children with CP has shown that treatment with some types of stem cells is safe and can provide gains in motor function greater than rehabilitation alone. However, there are currently no approved stem cell therapies available for people with CP.

At the moment, researchers are investigating a number of different stem cell therapies so that in the future we may have a variety of stem cell treatments for the specific types of CP arising from different causal pathways.

Locally, there has been one Australian trial of umbilical cord blood stem cells for CP, and we are working to establish more trials to make new treatment options a reality.

## Ambitious research goal

Our ambitious research goal is to make safe and effective regenerative medicine therapies available for Australians with cerebral palsy who need and want them.

## Family Perspective

Emily was one of the first children with CP to be treated using umbilical cord blood stem cells in Australian research. Her mother, Claire, says

*“I wish the floodgates would open so we could do as much research as possible.”*

When parent to a child with CP, James, was asked at our public forum whether he would enrol his son in a stem cell research trial if available, he says

*“100%, we certainly would. The evidence...is pretty compelling...I’m really hopeful that something can come along and make his (Franklin’s) life better.”*

## Theme Leader



Megan  
Finch-Edmondson  
PhD, Senior Stem  
Cell Research Fellow

*“Stem cell research is a really exciting area to be working in. Over the last 15 years we have seen great progress in this field, with potential for many new CP discoveries.*

*Importantly, we know that stem cell research is a high priority for the CP community, and we are working hard, together with a network of collaborators, to drive research in this space.*

*Our ambitious regeneration research goal aims to deliver world-leading clinical trials for CP, and open up new avenues for the CP community to learn more about stem cells, become involved in research, and eventually, access new regenerative medicine treatments.”*

*Dr Megan Finch-Edmondson*