Youth serum for real

（白血病)骨髓移植与并生有什么区别?_

并生会产生免疫排斥吗？

> 提高健康生存期(health span)

Work of GDF11

In 2013, Wa gers,Lee, and their colleagues reported in Cell that injection of GDF11 alone has the same effect on the hearts of old mice as an infusion of young blood: It significantly **reversed cardiac enlargement**(心脏肿大) (hypertrophy), which often causes the kind of heart failure comm only seen in older people.

And this spring(2014), in two papers in *Science*, **Wagers Lee**, and their colleagues showed that raising GDF11 to youthful levels rejuvenated muscle stem cells, reversing age-related impairments and producing greater strength and endurance in older mice.

Working with **Rubin**, they also reported that GDF11 bolstered circulation in older mouse brains, which promoted the formation of new neurons and ultimately improved
brain function.

Points for other scientists of GDF11

> “It’s obviously a fas-cinating idea that somet hing in the blood can potentially reverse aging,” says **Toren Finkel**, who heads the Center for Mo lecu-lar Me dicine at the Na tional He art, Lung, and Blood Institute in Bet hesda, Maryland. “That’ s sort of the **holy grail** for aging research.… But you’d like to know how these things work, what the mechanism is.”
>
> **Other researchers** caution that the work still need tos to be reproducted and
> note that growth factors have the potential to initiate or accelerate cancers.
>
> Wagers suspects injecting GDF11 directly into pat ients would be “not ideal,”

> because such an approach would bypass the tight biological regulat ion go vern-
> ing the molecu le and perhaps increase the risk of side effect s. “Minimally, we
> could use it as a biomarke r for predicting outcome” and monitoring other treatments for age-related conditions.
> Citing unpublished data on nearly 2000 elderly heart pat ients followed for roughly 9 years, for example, Peter Ganz of UC SanFrancisco and colleagues have
> report ed at meet ings that lower levels of GDF11 in the blood predicted higher
> rates of heart attack, sroke , congestive heart failure, and overall mortality.

Other Factorss

Th is is a complicated and robust system of regulation, so there’s likely multiple signals.” Indeed, Rando’s lab at Stanford has been pursuing blood-borne factors in older mice that seem to suppress stem cell activity and blunt their regenerative capacity. Conboy’s lab at UC Berkeley has recently reported that levels of the hormone oxytocin in the blood decline with age, and increased amounts of oxytocin (催产素)seem to play a major role in activating adult muscle stem cells and improving muscle regeneration. And Wyss-Coray and colleagues reported this past May in *Nature Medicine* that infusions of “young blood plasma” reversed the neural and cognitive impairments of old mice—largely by rejuvenating the function of synapses. “Interestingly, none of us ended up with the same pathway of this"

Application

Stanford doctors plan to begin transfusing plasma from young blood donors into patients with Alzheimer’s disease, and Conboy says clinical test ing of oxytocin, already a Food and Drug Administration–approved drug, and other blood-borne factors are under discussion by UC Berkeley scientists.

“You want to be enthusiastic about the potential, the real potential of the science,” she continues. “On the other hand, you have to turn around and say, ‘But not yet.’ It’s just areally hard message —to be clear that the hope is real, but that it will take time, and we can’ t tell you the path to get there.”

Reference

- *Science* 2014 VOL345 p1234~1237
- Restoring Systemic GDF11 Levels Reverses Age-Related Dysfunction in Mouse Skeletal Muscle
- Vascular and Neurogenic Rejuvenation of the Aging Mouse Brain by Young Systemic Factors