Self-Sequestering Carbon

Self-sequestered carbon freely permeates into and then binds soil and subsoil. It does not need to be buried, injected or stabilized.
Polyarginine has multiple, very strong positive charges to bind soil’s negative charges.

- Water soluble
- 50% C and 35% N, “urea carrier”
- Binds very tightly to the mineral portion of soil
- Doubles for slow-release N
- Half-life in soil can be tuned by the peptide sequence
Polyarginine made from wastewater creates a circular economy around C and N, drawing biogenic C to the soil reservoir. CO$_2$-eq emissions are dropped in 10 ways system-wide, avoiding up to 500 MMT CO$_2$-eq /y.

- Using the same strong positive charge, C and N is drawn from wastewater as a solid, lowering remediation costs, and paying for peptide production.
- The solid, dry, sterile product is a perfect drop-in fertilizer for return to farms.

*In Proof-of-concept stage*