DURING THE flu pandemic of 1918-19 doctors at an American naval hospital developed a treatment which, according to the American Journal of Public Health, had “a decided influence in shortening the course of the disease and in lowering the mortality”. It involved clotting and then centrifuging blood from people who had got over the disease so as to separate out the antibodies it contained, then giving those antibodies to patients in dire need.

在1918-19年流感大流行期间，美国海军医院的医生开发了一种治疗方法，据《美国公共卫生杂志》(American Journal of Public Health)称，这种方法“对缩短病期和降低死亡率产生了决定性影响”。它包括凝血，然后从已经痊愈的病人的血液中分离出抗体，然后将这些抗体提供给急需的病人。

Since then antibody-rich “convalescent plasma” (CP) has been used as a treatment for various diseases, including SARS and the pandemic strains of H1N1 and H5N1 influenza. Now covid-19 has joined the list. A recent study in Wuhan found that severely ill covid-19 patients treated with CP did significantly better than patients matched with them by age, gender and severity of infection had done earlier in the epidemic.

从那时起，富含抗体的“恢复期血浆”(CP)就被用于治疗各种疾病，包括SARS和H1N1和H5N1流感大流行毒株。现在，covid-19也加入了这一行列。武汉最近的一项研究发现，接受CP治疗的重症covid-19患者，比年龄、性别和感染严重程度匹配的患者在疫情早期的表现明显好。

Michael Joyner of the Mayo Clinic, which leads a CP research effort in America, expects randomised control trials to begin in a few weeks. They will not just look at CP’s potential as a treatment, but also as a prophylactic. If that worked, it would be a sort of halfway house on the road to a vaccine.

美国梅奥诊所(Mayo Clinic)的迈克尔•乔伊纳(Michael Joyner)领导了一项CP研究，他希望在几周内开始随机对照试验。他们将不仅着眼于CP作为一种治疗手段的潜力，还将其作为一种预防手段。如果成功了，这将是通向疫苗之路的一种过渡。

Even though CP donors get the other components of their blood—cells, platelets and the like—returned to them after the antibodies have been removed, the process is still something of a palaver, requiring a lot of medical attention. Despite the fact that various companies are trying to make a go of it, it is hard to see it scaling up all that far. But there is an alternative. Antibodies are proteins, and that means a bit of genetic engineering will allow cell lines at biotechnology and pharma companies to mass produce them. The resulting product should be less prone to contamination, more consistent, and easier to scale up than CP.

即使在抗体被移除后，CP供体能够将其血细胞、血小板等的其他成分恢复到自己体内，但这一过程仍需要大量的医疗护理。尽管许多公司都在努力尝试，但很难看到它的规模扩大到那一步。但还有另一种选择。抗体是蛋白质，这意味着稍加基因工程就可以让生物技术和制药公司的细胞株大量生产抗体。与CP相比，最终的产品更不容易受到污染，更一致，更容易扩大规模。

This approach has already been successful against Ebola. Regeneron, an American biotech company, developed a cocktail of three antibodies which recognised different parts of the protein’s coat. Trials in the Democratic Republic of Congo showed this therapy to be better than remdesivir, a drug designed to block the Ebola vaccine’s reproduction which is now, as it happens, being tested as a medicine for covid-19.

这种方法已经在对抗埃博拉上取得了成功。美国生物技术公司Regeneron开发了一种三种抗体混合物，可以识别蛋白质外壳的不同部分。在刚果民主共和国进行的试验表明，这种疗法比remdesivir更好。remdesivir是一种旨在阻止埃博拉疫苗繁殖的药物，目前正在作为covid-19的药物进行测试。

Regeneron is now making a pair of antibodies that target the SARS-CoV-2 spike protein. It hopes to have produced enough to start trials soon. As with CP, it is possible that such antibodies may temporarily confer immunity on the uninfected, as well as helping the infected fight the disease.

Regeneron现在正在制造一对针对SARS-CoV-2刺突蛋白的抗体。该公司希望能生产出足够的产品，以便很快开始试验。与CP一样，这些抗体可能会暂时给予未感染者免疫力，同时帮助感染者对抗疾病。