

# IMPEACHMENT

11.29.2019

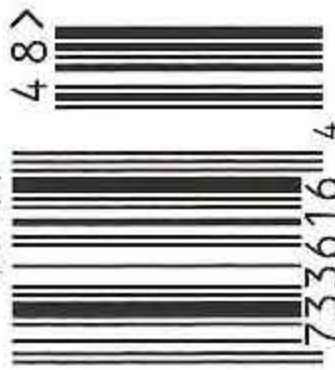
# Newsweek®



**Convincing  
67 senators  
to convict Trump  
will be tough. But  
here's what Republicans  
are worried about.**



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## **“We can use the same method of delivery to treat exposure to sarin gas in chemical attacks.”**

### **Do people die from anaphylaxis?**

In severe conditions, yes. Especially if they are not treated, or if there are significant delays in their treatment—which contributes to the whole fear component.

### **What is anaphylaxis and how does epinephrine combat that?**

When the patient has been exposed to an allergen, it can initiate a series of reactions in the body that may culminate in a constriction of the throat so that the patient cannot breathe. Anaphylaxis may include throat swelling, difficulty breathing, talking, swallowing, a drop in blood pressure and other symptoms. Epinephrine elevates the blood pressure back to normal, regenerates that circulation and relaxes the [smooth] muscles in the lungs and allows the patient to breathe freely. And it requires immediate administration, so if the patient delays, it's going to be much worse.

### **Is that what would really make this tablet so effective? You don't have to fumble with a pen?**

The tablet has exactly the same drug as the injection. You're not restricted to the injection and its potential drawbacks. It's going to be much easier to carry the tablets than the injectors all the time.

### **Is the tablet cheaper?**

Cost is more of a marketing decision

by the company that produces these tablets. However, usually the cost is associated with the mechanics of the injector; the cost of the device itself. Hopefully, they should not be as expensive as the cost of the injectors.

### **What's the tablet's manufacturing timeline?**

We've completed the preclinical component of the research. We're looking forward to moving on to clinical trials so that we can approach the Food and Drug Administration for approval. It could take up to five to six years to enter the market.

### **What differentiates you from others who have tried to tackle this problem before?**

The drug itself is very challenging to work with. We were able to keep the drug stable during storage and formulate a platform that would allow it to disintegrate under the tongue within 30 seconds and release a sufficient amount of the drug, which itself gets absorbed really quickly. I was able to synthesize the microcrystals of

the drug, which allowed us to reduce the dose that we need to administer sublingually to achieve the same concentration as an injection.

### **Are there other applications for this?**

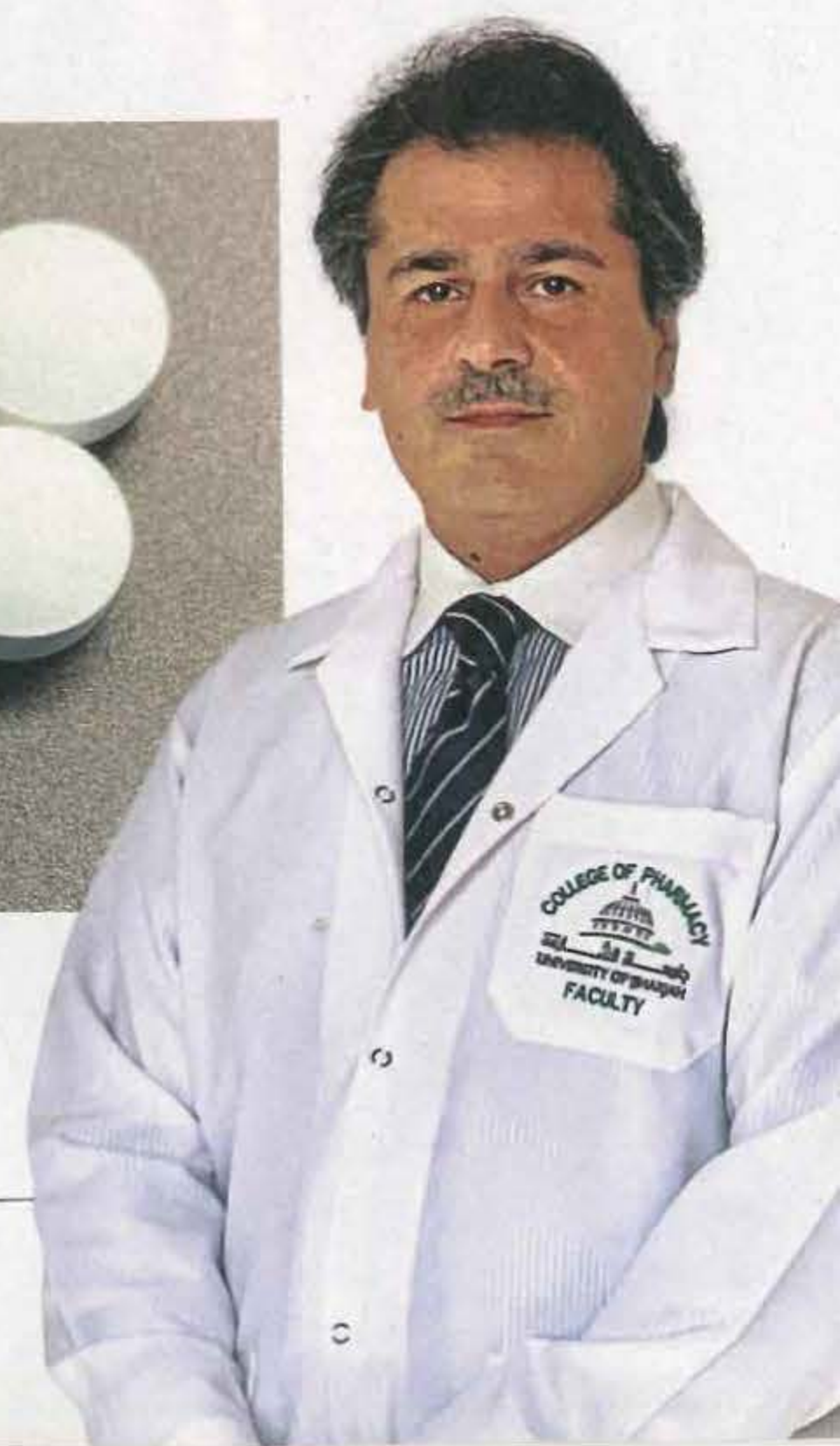
We can use the platform for multiple drugs with the same method of delivery to treat exposure to sarin gas in chemical attacks. The antidote is atropine, which is only available through injectors, like epinephrine. But we can provide the same molecule in a more useful, less invasive way. We developed atropine in a sublingual tablet, and we were able to file a patent for it. We think we'd be able to save a lot of lives. The method also can be used for farmers who are exposed to pesticides.

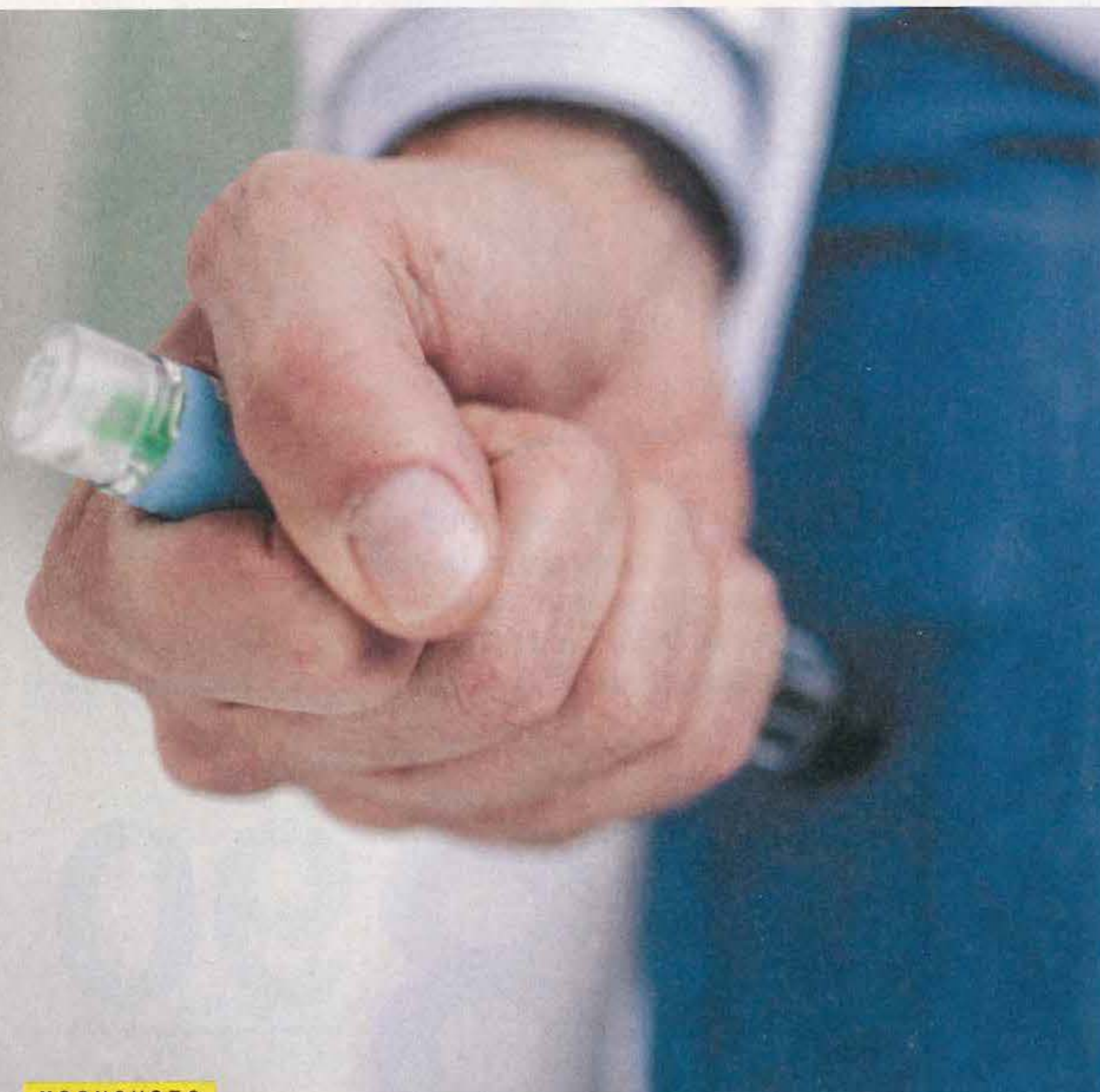
### **How do you see the world in 20 years if you succeed?**

Hopefully this can be applied for a lot of molecules. I'm really looking forward to helping people in emergency situations. This would make a dramatic change in the cost associated with treating conditions. ■



**EPI-FAST, EPI-FIRST, EPI-EASY** Dr. Rawas-Qalaji is determined to make carrying emergency epinephrine more convenient—eliminating some barriers to fast treatment for anaphylaxis, which can save lives.





MOONSHOTS

# No More Needles

The future of treatment for food allergy reactions may be a discreet, dissolvable pill

**➔** IN CELEBRATION OF THE 50TH ANNIVERSARY OF NASA ASTRONAUTS LANDING on the moon, Newsweek is spotlighting pioneers in science and technology, highlighting their very own moonshots and how they hope to change the world.

Inventor and medical researcher Dr. Mutasem Rawas-Qalaji has ditched bulky EpiPens and needles to create a groundbreaking delivery method for life-saving medication. His epinephrine tablet could be revolutionary for the estimated 240 million people suffering from food allergies worldwide. Epinephrine is the only effective treatment for anaphylaxis from food allergies, but it needs to be administered fast and by injection., a problem for young kids and people afraid of needles. Rawas-Qalaji has developed a tablet form that can be quickly absorbed under the tongue and is more shelf-stable than the traditional epinephrine autoinjector. It could significantly minimize the barriers to fast treatment, saving lives in the process.

BY

NOAH MILLER

## Is your epinephrine tablet a game changer?

I think so. It's going to change the way of treating anaphylaxis.

## What's the big problem you're trying to solve?

There's fear involved with injecting epinephrine. It is amplified when patients need a second dose. Some patients have to carry a pen with them all the time. The size is cumbersome. They're heat sensitive. There are a lot of issues associated with autoinjectors.

## Are those in need of epinephrine injections mostly children?

You see patients in different age groups, but the issues of [injecting medication] become more complex when dealing with children. Receiving an injection is very frightening regardless, and even more so during an allergic reaction.

## What do you want to see your tablet do?

I want to see patients carrying the tablets without the challenges—without fearing that their injectors are expired, that they've been left outside in the heat for a long time. It's going to change the whole way we treat anaphylaxis, in how we administer the drug, epinephrine. The tablet is going to relieve a lot of stress. I see the amount of stress and fear parents of children with anaphylaxis live with. Every day they think: Is my child safe at school? At camp? On a sleepover? Some children need to check each and everything they eat; they cannot act like normal children in certain respects. They can't just grab a candy bar or snack that's being offered to them. I want to help patients live more normal lives, not to be always fearful that something is going to happen with their injector.

FROM LEFT: SCIENCE PHOTO LIBRARY/GETTY; COURTESY OF MUTASEM RAWAS-QALAJI (2)