



*Latest*  
Hair Loss  
**RESEARCH &**  
**TECHNIQUE**  
*Breakthrough*  
**in 2012**

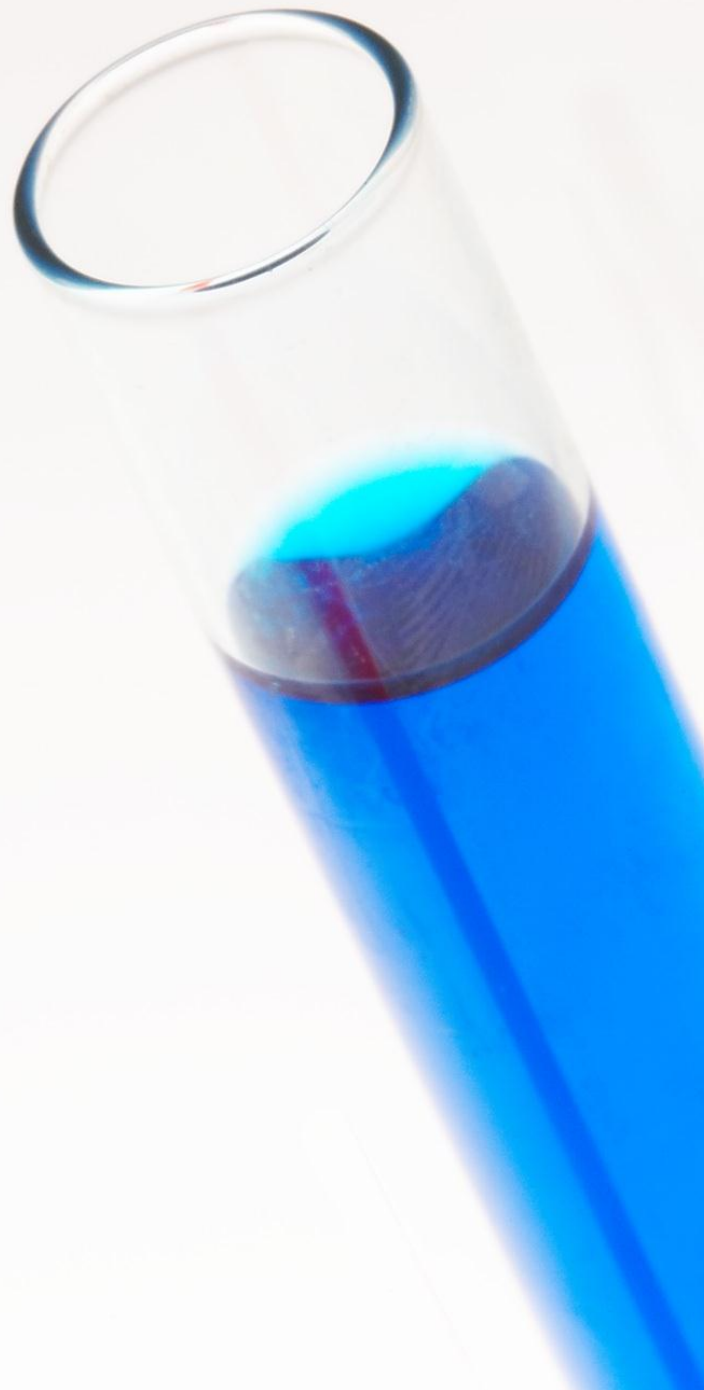
# New Drug that inhibit PGD2

Hair loss in men seems to be too common that we no longer make double takes when someone sports a shiny and totally barren scalp. But this doesn't always hold true for those who suffer from it. No matter how common this is for men, the impact that this condition have on the self-esteem is a different story in itself. And that is why a lot are hopeful when something new is discovered which promises to treat hair loss.

Fortunately reports surfaced claiming that a new treatment for hair loss would be available in stores soon. This was to target another chemical in the body that is also discovered to trigger excessive hair loss.

Just this year when dermatologists from the US claimed that they found an enzyme that is also responsible for hair loss. In the past, the commonly known reason for excessive hair shedding is 5-alpha reductase. This is an enzyme that is present in minute amounts in the muscle that when it comes in contact with the male hormone testosterone, it converts it to DHT or dihydrotestosterone, which causes hair loss.

There are 5-alpha reductase inhibitors that are out in the market to combat the effects of DHT to the hair. Other indications for it include benign prostatic hyperplasia and lower urinary tract infections. However, with the discovery that hair loss may also be triggered by another enzyme, it goes without saying that the common cure may not be applicable for some cases.



## *There are 5-alpha reductase inhibitors that are out in the market to combat the effects of DHT*

The other villain that causes hair loss is called prostaglandin D2 or PGD2. This resulted after they screened 250 genes that were suspected to cause hair loss. Its destructive effects start when it signals the hair follicles to stop reproducing. This, of course, ultimately leads to balding.

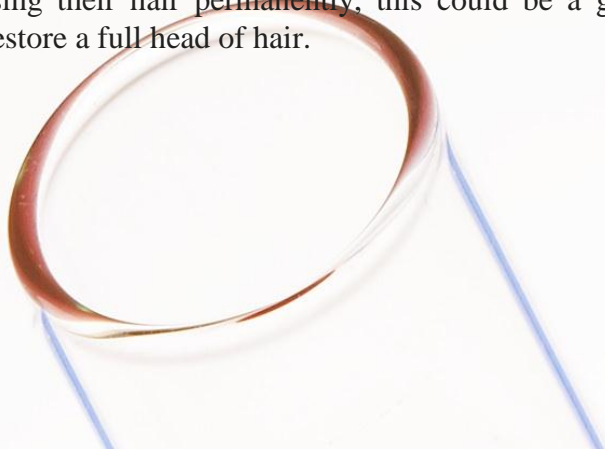
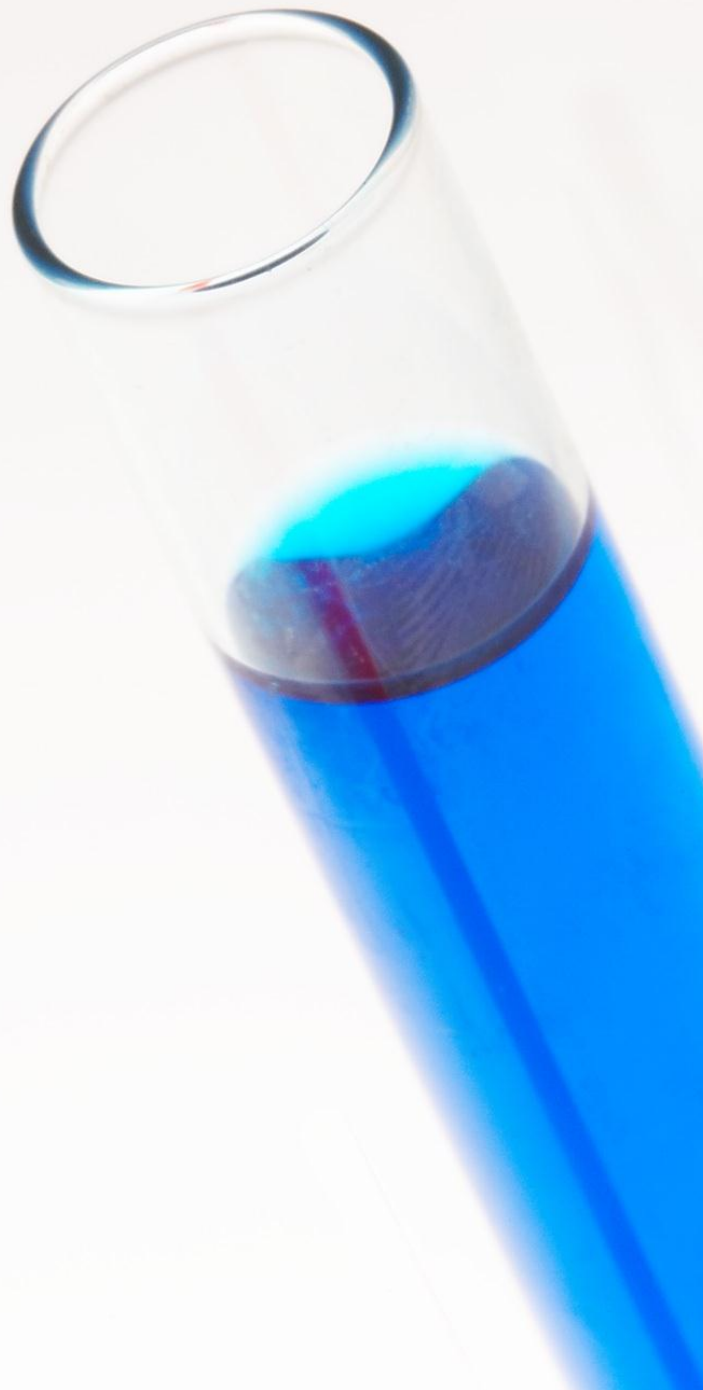
However, the drugs that inhibit PGD2 are actually already available, but the treatment of hair loss is still an off label use. And because of that George Cotsarelis, who is the head of the dermatology department in Pennsylvania University, have been talking to drug firms about an anti-baldness product that targets this particular enzyme.

In a research done by Cotsarelis and his team, they found out that the hair loss that the presence of PGD2 in the scalp was three times higher in balding areas compared to those that still has hair.

The studies showed that the process of hair loss starts out with the hairs starting to thin when exposed to these specific enzyme. Then it eventually causes it to shrink and shed off. The bald areas may still produce hair; however it may be rather flimsy at first. But over time it tends shrink smaller and smaller until the hair follicle no longer produce any hair, resulting in permanent baldness.

When the study was published in Science of Translational Medicine back in March, Cotsarelis mentioned that if the inhibition that is caused by the presence of PGD2 is removed or treated, there is a very good chance that hair would develop yet again. That is why, it is not only a hope for treating hair thinning but balding as well.

For those who may not be a good candidate for hair transplant and are losing their hair permanently, this could be a good chance to restore a full head of hair.



# Stem Cell Therapy for Hair Loss

The approach of stem cell hair loss therapy is basically the same as the other techniques preceding it. It does not use any artificial materials, but rather the patient's own blood to promote hair growth.

Stem cell is found in various organs in the body and it is found to adapt and transform itself to the tissue or organ assuming an important role in repairing and maintaining healthy tissues. Experts thought that this also carries on to a balding scalp.

This has proven to be an effective hair loss treatment when used on mice, that is why phase II studies are underway, which is to prove if this can also provide better hair regrowth on humans (both males and females).

The treatment would involve the process of drawing blood from the patient which is then centrifuged to separate the plasma component which contains growth factors and stem cells. Once this has been collected, the surgeon injects this into the affected area. In order to improve the migration of the stem cells to area of focus, a laser light is directed over it. The entire procedure is reported to create some amount of discomfort but it can be finished in just an hour, and it would only have to be performed once.

Stem cell hair loss therapy is approved by the FDA as an injectable treatment to promote wound healing in hair transplants but not on regrowing hair. Studies are still underway with researchers saying that results could be published later this year. Meanwhile, while this promising hair loss treatment is still in the works, you can still opt for other hair restoration measures available.



## *2.1 Platelet Rich Plasma (PRP)*

PRP treatment is done by first collecting around 60-100 ml of blood from your vein, which would have to be done by a phlebotomist or a nurse. This will be placed on a special container and then spun on a centrifuge to separate the different blood components. The time in the centrifuge would take approximately 15 minutes and after that your plasma will be separated from the other blood materials.

The plasma component which is teeming with stem cells and growth factors is then collected and prepared for injection to the scalp. A micro needle roller device is used for administration, but despite the size, the scalp would have to be prepared with topical anesthesia to make the procedure less painful.

The roller device would create micro trauma to the scalp stimulating the healing process. While this is happening, PRP is also injected into the area simultaneously. The area would have to be wrapped with occlusive dressing later on to prevent bleeding, lessening the effectiveness of the treatment.

During the healing process the platelet rich plasma will generate thicker and healthier hair growth as the stem cells of the transplanted hair follicles are stimulated. It is also advisable that patients prevent taking anti-inflammatory medications because this might impair the healing process. And they must remember to stay out of the sun and protect the area at all times.

The first few days after the procedure might cause some swelling on your scalp. In rare occasions an infection may even be possible. But with the right techniques used by an experienced and reputable surgeon, this can be avoided. Allergic reactions wouldn't be an issue in this kind of treatment, because you are basically using your own blood.

Generally, the outcome of this procedure is often highly satisfactory with an 80% success rate. Scientific studies have proven that Platelet Rich Plasma promotes best results for hair transplant procedure as shown by successful results over the years.



# Glaucoma

## *Eye Drops*

Who would have thought that a possible cure for hair loss could simply be right before the eyes of many glaucoma patients?

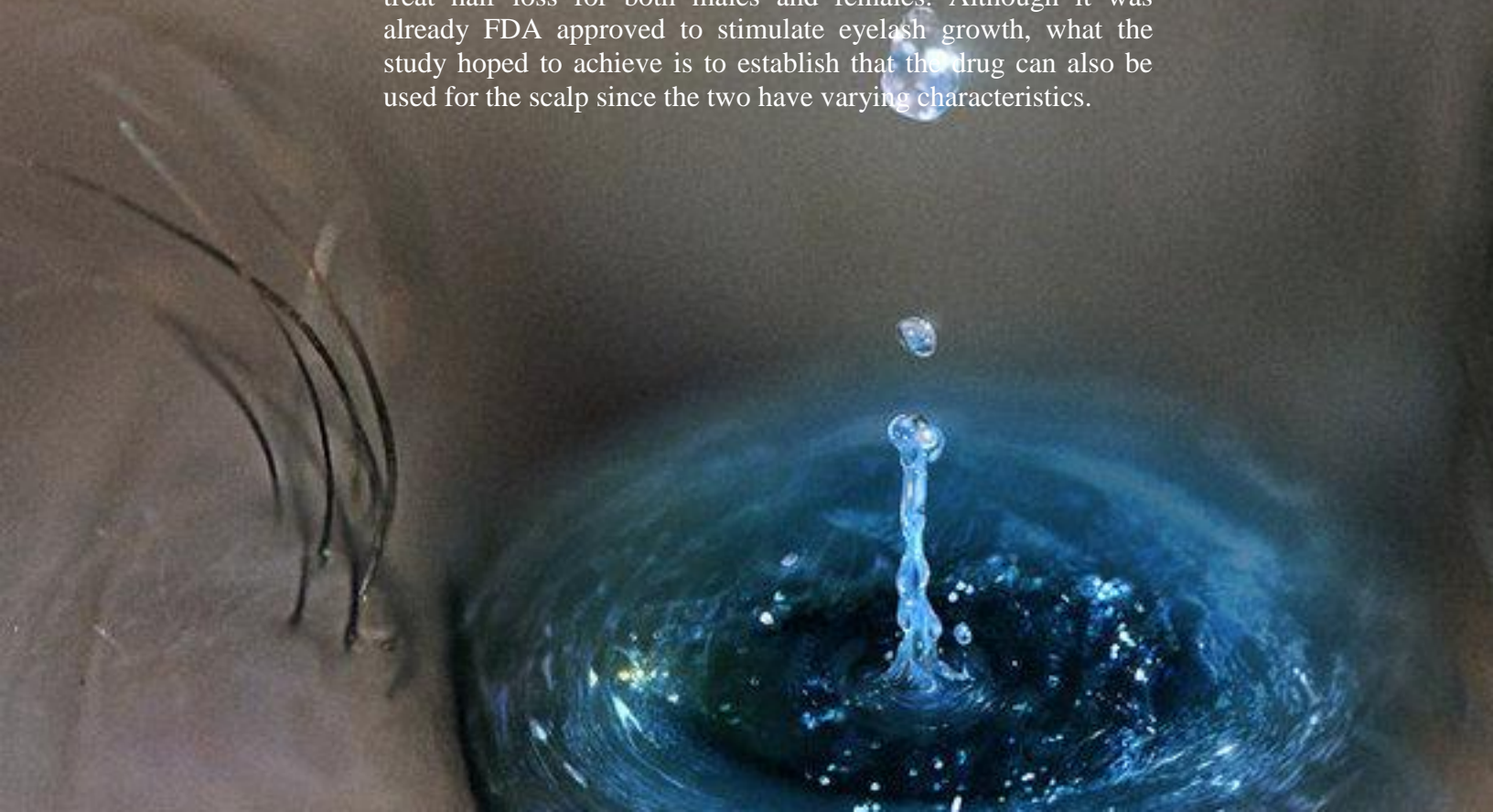
Studies found that the drug Lumigan which is indicated for glaucoma, an eye condition that leads to optic nerve damage due to increased intra-ocular pressure (IOP), helps relieve hair loss.

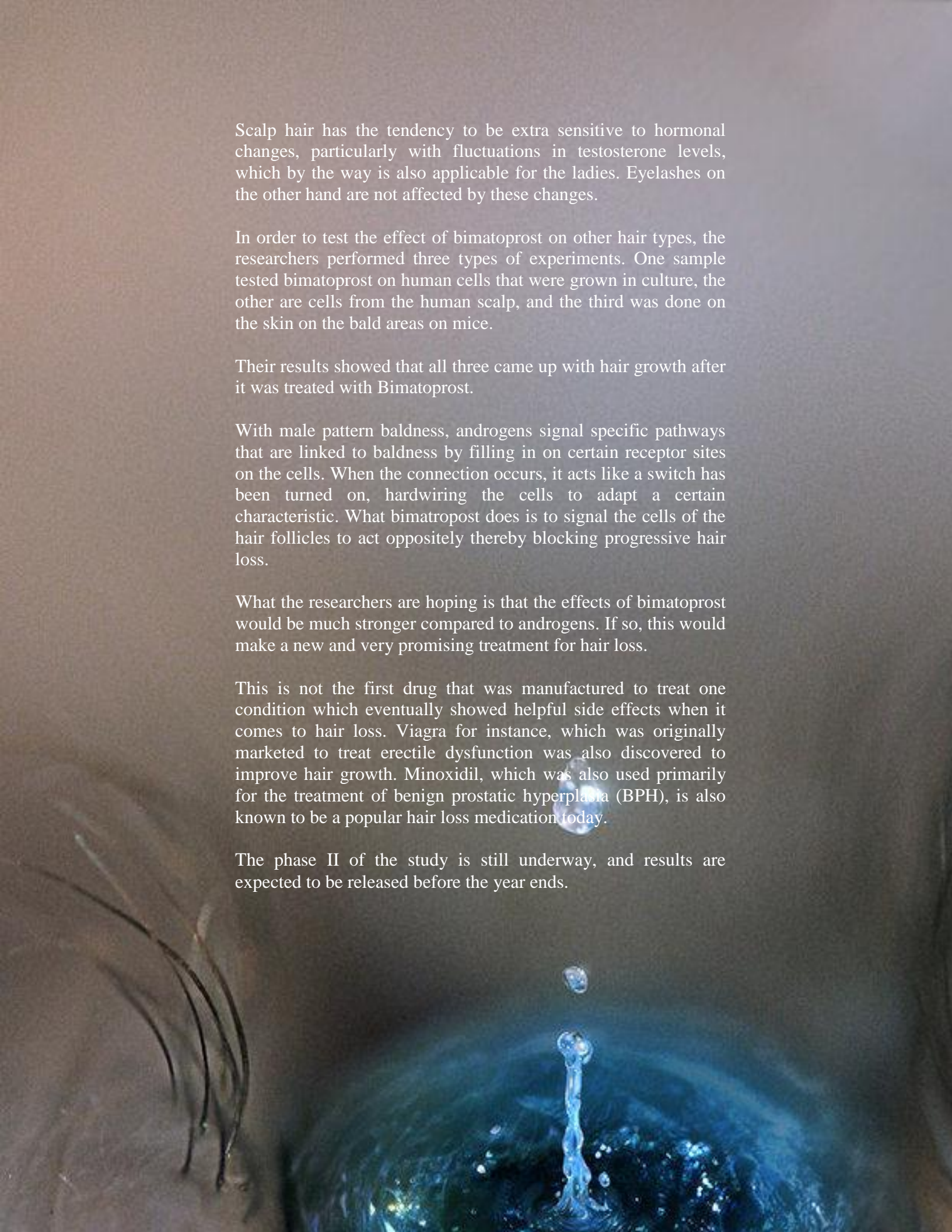
It was already observed that continued use of the drug stimulates the growth of the eyelashes. This was due to the active ingredient of the drug which is Bimatoprost. Research suggested that this could also have the same effect on scalp hair.

Professor Valerie Randall, who is also the lead scientist in the research done at University of Bradford in Bradford, UK, said in a statement that they hoped “this study will lead to the development of a new therapy for balding which should improve the quality of life for many people with hair loss.”

There tests were able to find a molecular signaling pathway that was linked to hair growth of the follicles.

However trials are still underway to see if bimatoprost can help treat hair loss for both males and females. Although it was already FDA approved to stimulate eyelash growth, what the study hoped to achieve is to establish that the drug can also be used for the scalp since the two have varying characteristics.





Scalp hair has the tendency to be extra sensitive to hormonal changes, particularly with fluctuations in testosterone levels, which by the way is also applicable for the ladies. Eyelashes on the other hand are not affected by these changes.

In order to test the effect of bimatoprost on other hair types, the researchers performed three types of experiments. One sample tested bimatoprost on human cells that were grown in culture, the other are cells from the human scalp, and the third was done on the skin on the bald areas on mice.

Their results showed that all three came up with hair growth after it was treated with Bimatoprost.

With male pattern baldness, androgens signal specific pathways that are linked to baldness by filling in on certain receptor sites on the cells. When the connection occurs, it acts like a switch has been turned on, hardwiring the cells to adapt a certain characteristic. What bimatoprost does is to signal the cells of the hair follicles to act oppositely thereby blocking progressive hair loss.

What the researchers are hoping is that the effects of bimatoprost would be much stronger compared to androgens. If so, this would make a new and very promising treatment for hair loss.

This is not the first drug that was manufactured to treat one condition which eventually showed helpful side effects when it comes to hair loss. Viagra for instance, which was originally marketed to treat erectile dysfunction was also discovered to improve hair growth. Minoxidil, which was also used primarily for the treatment of benign prostatic hyperplasia (BPH), is also known to be a popular hair loss medication today.

The phase II of the study is still underway, and results are expected to be released before the year ends.



## **Dr Andrew Kim, MD** *Hair Transplant Surgeon*

Dr Andrew Kim is the founder and Medical Director of Australian Institute of Hair Restoration, a clinic specializing in surgical hair restoration.

He has a team of highly-skilled hair transplant technicians who address the needs of their clients after a thorough consultation. They operate in various locations in Australia including Sydney, Melbourne, and Canberra.

For more information on protecting, enhancing and restoring your living and growing hair, call **1300 733 092**, or learn more online at [www.aihr.com.au](http://www.aihr.com.au).