

My prog-MS ezine

For people with progressive MS and other interested people

Issue number 47, March-April 2023

Hello and welcome to the latest edition of my ezine about progressive Multiple Sclerosis and MS progression in general. My name is Ian Cook. I'm a secondary progressive MSer from Birmingham, UK. I'm 64.

In this issue are eight pages of prog-MS news stories. There are also two features. One on page 5 is about the similarities between EBV and polio. The severity of both infections varies massively and both can return later on I life. Is post-polio syndrome similar to MS, in that MS is a return of EBV later on in life, years after the original infection like post-polio syndrome? There's also a personal feature which looks at my decision to start using a wheelchair. See page 10 for further details. Picture below thanks to hans-moerman-rEOVfkfleok-unsplash

IN THIS ISSUE



Accepting I REALLY am now a wheelchair user page 10

FDA says "yes" to Phase 3 Trial of Masitinib for Prog-MS - p2

More positive results in Foralumab prog-MS trial -p3

News

FDA says “yes” to Phase 3 Trial of Masitinib for Prog-MS

The U.S. Food and Drug Administration (FDA) has given the green light to French bio-pharma AB Science to start a Phase 3 clinical trial of its investigational treatment masitinib in people with progressive MS.

The decision follows approvals in several European countries that will also host trial sites, including Sweden and France. The MAXIMS Phase 3 trial (NCT05441488), also known as Study AB20009, is expected to include up to 800 participants at about 75 sites in Europe, the U.S., Canada, Israel, and South Africa. Currently, a dozen sites in France, Greece, Poland, Spain, Ukraine, and Russia are enrolling participants. Eligible participants, ages 18–65, must have either primary progressive (PPMS) or non-active secondary progressive MS (SPMS), and no evidence of active inflammatory brain lesions.

The study will test the effectiveness of masitinib 4.5 mg/kg/day compared to placebo taken for 96 weeks. The main measure of the study will be the effect of masitinib on the time to reach confirmed disability worsening.

“We are very pleased to receive FDA approval for this confirmatory study,” said Patrick Vermersch, MD, PhD, professor of neurology at the University of Lille, France, and principal investigator of the study, in a company press release. “This demonstrates an acknowledgement that masitinib has viable neuroprotective role via its mechanism of action, which we believe is supported by the scientific and clinical data.”

While PPMS and non-active SPMS account for about 15% and 35% of all MS cases, Ocrevus (ocrelizumab) remains the only approved treatment for PPMS and mitoxantrone the only therapy available for non-active SPMS.

Masitinib belongs to a class of drugs called tyrosine kinase inhibitors which block biochemical processes involved in inflammation and the immune responses. This results in a reduced immune response and less inflammation. Masitinib targets microglia, macrophages and mast cells, cells which are involved in allergy and inflammation.

According to AB Science, masitinib’s mechanism of action is different from other tyrosine kinase inhibitors being developed, such as evobrutinib, tolebrutinib, and fenebrutinib, which mainly target the immune B-cells that drive a different type of immune response, called adaptive immunity. The company believes its experimental therapy could complement these other treatments.

For details of sources for all news stories go to page 14

One point EDSS Drop in 2nd SPMS Patient on Foralumab

A second person with non-active secondary progressive MS (SPMS) treated with foralumab nasal spray is continuing to show improvements 11 months after starting treatment, according to an update from foralumab's developer, Tiziana Life Sciences.

The patient, dubbed EA2, experienced a one-point drop — indicating less disability — on the Expanded Disability Status Scale (EDSS) as of December 2022. Treatment began just 11 months earlier in January 2022. Five other SPMS patients with non-active disease currently are being dosed with intranasal foralumab under expanded access programmes at the Brigham and Women's Hospital (BWH) in Boston, USA.

"The sustained improvement in EDSS score starting at 6 months and further improving after 11 months on foralumab treatment in patient EA2 is impressive and warrants further study in a Phase 2 trial," Tanuja Chitnis, MD, a neurology professor and principal investigator of the study at BWH, said in a company press release.

Foralumab is an antibody-based treatment designed to target the CD3 protein found on the surface of T-cells, a type of immune cell implicated in the inflammation that drives MS and other neurodegenerative diseases.

Preclinical data have shown that foralumab works to lessen the activity of T-cells, while activating a set of immunosuppressive cells called regulatory T-cells. The regulatory T-cells travel to the brain and inhibit the activation of microglia, the brain's resident immune cells that are known to drive inflammation in neurodegenerative diseases. Tiziana expects the treatment can benefit people with non-active SPMS.

Data from the first patient showed the therapy was well-tolerated, and led to clinical improvements after just six months. The benefits were accompanied by a suppression of microglial activity in the brain, as observed on brain scans. This prompted the FDA to clear the first patient to continue receiving foralumab for another six months, and enabled a second SPMS patient to start treatment. The second patient has seen an overall drop of one point since starting treatment.

Early data from these first two patients led the FDA to clear an intermediate-size expanded access programme for up to eight patients. Four other SPMS patients are now enrolled in that programme, allowing treatment with foralumab nasal spray at a 50 microgram dose. Additional data from all six patients are expected later this year.

For details of all news stories go to page 14

Neural Stem Cell Therapy for prog MS shows benefits in early study

A treatment using neural stem cells derived from a human foetus was shown to have "promising effects" in a small clinical trial of 12 people with progressive MS. The treatment was said to be "well tolerated".

Results showed positive effects on markers of inflammation and brain atrophy. Researchers said these preliminary findings "warrant future clinical studies with the highest dose of cells in a larger [group] of patients." The study, "Neural stem cell transplantation in patients with progressive multiple sclerosis: an open-label, phase 1 study," was published in Nature Medicine.

Neural stem/precursor cells, (NPCs), are specialized stem cells able to mature into neurons (nerve cells) and other types of cells in the central nervous system. In addition to differentiating into new cells, NPCs can secrete signalling molecules that improve the health of nearby cells. A number of preclinical studies in MS models have shown that transplanting NPCs into the brain can be beneficial, with cells traveling to damaged regions and promoting functional improvements.

Scientists at San Raffaele Scientific Institute in Milan, Italy, conducted a small, first-in-human Phase 1 clinical trial, called STEMS (NCT03269071), to test NPC therapy in people with progressive MS. In the study 12 people with progressive MS — seven with PPMS, five with SPMS — were treated.

The study's main goal was to assess the safety of NPC treatment and results were generally positive. There were no notable acute complications related to the treatment, though many patients reported mild headache and neck stiffness, which are common with injection into the spinal canal (intrathecal injections). Infection and constipation were sporadically reported, but it wasn't clear if these were related to treatment.

"The primary outcome — safety — was reached with no severe adverse reactions related to the cell product at 2-year follow-up," the researchers wrote. Comparisons of CSF (cerebro-spinal fluid) samples collected at the treatment and three months later showed levels of several inflammatory proteins in the CSF decreased after treatment and levels of anti-inflammatory molecules and signalling molecules that promote nerve cell health increased.

The changes in CSF biomarkers suggest NPC treatment "might have played a neuroprotective role" in these patients, said the researchers

. **For details of all stories go to page 14**



What polio has to tell us about MS

In recent weeks I have been "trolled" by a fellow MSer who tells me in the strongest possible terms of his total scepticism regarding the proposed link between glandular fever/ Epstein Barr virus (EBV) and MS.

My troll never misses an opportunity to declare his total scepticism about EBV as the cause of MS. I have had plenty of angry emails and texts, all telling me that the evidence just isn't there.

At one level he has a point. How can it be that 95% of the general population test positive for the Epstein Bar virus (EBV) the cause of glandular fever, but MS affects only 1 per cent. How scientific is this supposed link? he asks.

One of the problems in proving a definite link between Epstein Barr virus and MS is the fact that 95 per cent of the population test positive for EBV. The vast majority of these people don't have MS and never will. Researchers always say more research is necessary into the EBV/ MS link, although I am always sceptical that such research will ever take place.

That said, I was pleased my scepticism was challenged recently by a group of academics led by Alberto Ascherio who looked at the medical records of millions serving in the US military, nearly 1,000 of whom were diagnosed with MS. It was found that the risk of MS increased 32-fold after infection with EBV and, in all but one of 995 adults diagnosed with MS, EBV infection was followed by an MS diagnosis some years later. Ascherio concluded: "These findings cannot be explained by any known risk factor for MS and suggest EBV as the leading cause of MS."

If Ascherio is right and EBV really is "the leading cause of MS" there is still the question: why don't the vast majority of people infected with EBV go on to suffer from MS? This brings me on to polio- a disease mentioned fleetingly in Ascherios's landmark paper.

Continued on page 6

Continued from page 5

The link between infection with the polio virus and the disabling condition paralytic poliomyelitis shares many similarities between infection with EBV and MS. Most people think of infection with the polio virus as terrifying and while it is true polio can be truly terrible, this is not the whole story.

The polio virus can, in a few cases, lead to a truly awful paralysing disease - paralytic poliomyelitis. However, in most cases infection with the polio virus does not lead to this. According the New York State Department of Health's website 70% of people infected with polio experience no symptoms. About 25% experience mild or flu-like symptoms that may be mistaken for many other illnesses. And according to the World Health Organisation just one in 200 (0.5%) of polio infections leads to irreversible paralysis.

If he same logic and rough ratios are applied to EBV and MS then it could be argued that the percentage of those testing positive for EBV who are later diagnosed with MS is similar to the percentage of people who are infected with the polio virus and are later struck down with paralytic poliomyelitis. In other words less than one per cent of EBV infections result in MS, which is comparable to the percentage of those infected with polio who go on to develop paralytic poliomyelitis. This is just a theory, but what must be remembered is that EBV, a herpes virus, is far more than just a relatively harmless childhood infection - glandular fever or infectious mononucleosis. It can and does lead to several other serious diseases. For example, EBV has been linked with several cancers including Burkitt's lymphoma as well as Hodgkin's and non-Hodgkin's lymphoma.

Another significant fact about herpes viruses is that several of them have a habit of returning either in their original form as in the case of cold sores or in a different form such as chickenpox which can return decades later as shingles.

Although none of this is conclusive proof that EBV is definitively the cause of MS there seems to be a growing body of evidence suggesting a theoretical link between the two. In causing another disease years later, EBV is behaving in pretty much the same way as other members of its herpes virus family. I know it's a cliché but this is one case where further research really is necessary. I hope the research takes place very soon.

For further details see page 14

P5 picture thanks to Marianne Bos – unsplash

Ocrevus slows Disease Activity and Progression in PPMS

Ocrevus (ocrelizumab) is effective in reducing disease activity after two years in people with primary progressive multiple sclerosis (PPMS) a new study reports.

Ocrevus, developed by bio-pharma Genentech, is a disease-modifying therapy that works by killing antibody-producing B-cells, which are involved in the damaging inflammatory responses driving MS. It's the only approved treatment for PPMS to date. The study, was published in Multiple Sclerosis and Related Disorders. The study also looked at patients with relapsing remitting MS (RRMS)

Researchers from Spain compared the disease course in PPMS and RRMS patients treated with Ocrevus for at least a year. They used data from patients treated at a single MS centre from January 2018 to October 2021.

A total of 42 adults – 13 with PPMS and 29 with RRMS were included in the analysis (average age, 44). PPMS patients were generally older, with a longer disease duration, and had more disability than those with RRMS. These PPMS patients received a mean 5.7 cycles of Ocrevus treatment and their follow-up lasted an average of 31.5 months. A total of 80% of PPMS patients had no new lesions in MRI scans after a year of Ocrevus and no new lesions were found in the second year.

A total of 7.7% of PPMS patients worsened and 10.7% improved in the first year. However, compared with RRMS patients, there were more patients with disability progression in the second year (36.4%) and fewer with disability improvements (9.1%). PPMS patients had less disability progression after starting Ocrevus than in the year before starting it, although the effects began to wear off in the second year for PPMS patients.

Combining radiological and clinical findings, 10 PPMS patients (90%) had no evidence of disease activity or progression (NEDA) at one year, meaning they had no relapses, no disability worsening, and no new lesions.

After two years, NEDA decreased in PPMS patients to 63.6%.

The assessment of safety and tolerance of Ocrevus showed no statistical differences between RRMS and PPMS patients. Overall, 42.5% of patients reported at least one side effect.

For details of all news stories go to page 14

More progress in finding remyelination agent

Bio-pharma Frequency Therapeutics is planning to start a first trial — in the second half of 2023 - of a molecule, designed to boost remyelination.

Richard Rudick, MD, a member of Frequency's Remyelination Clinical Advisory Board, said in a company press release: "While a number of approved drugs are highly effective in preventing new inflammatory lesions, stopping gradual neurodegeneration and gradual clinical worsening remain the greatest areas of unmet need".

While myelin can be repaired or replaced by myelin-producing cells called oligodendrocytes, this process tends to be ineffective in MS, due to factors that include ongoing inflammation and ageing.

Bio-pharma Frequency is leveraging its Progenitor Cell Activation (PCA) approach to harness the power of the body's innate regenerative potential to repair tissues and restore their function. Its MS programme aims to develop novel, small-molecule therapeutics that temporarily activate immature oligodendrocyte progenitor cells (OPCs) and turn them into mature, myelin-making oligodendrocytes. This is expected to improve myelin repair and potentially halt, or even reverse, MS progression.

The company reported on its website that preclinical studies showed the therapeutic compound, FREQ-162, triggered the maturation of progenitor cells into oligodendrocytes. These new cells were found to be capable of producing myelin in a preclinical model of demyelination.

"Supported by impressive preclinical data generated to date, Frequency has an opportunity to develop an entirely new therapy to address remyelination, and potentially provide those with MS with a first-in-class medicine with the hope of repairing damage caused by this challenging disease," said Rudick, a former director of the Mellon Centre at the Cleveland Clinic.

Rudick had "key roles" in the development of two approved MS therapies, Avonex (interferon beta-1a) and Tysabri (natalizumab), the release stated. The Remyelination Clinical Advisory Board also includes Laura J. Balcer, MD, whose career has been focused on the development of visual outcome measures for MS clinical trials; Alasdair Coles, PhD, who was involved in the development of Lemtrada (alemtuzumab); and Steven Galetta, MD, with expertise in clinical, radiological, and research aspects of MS.

For details of all news stories go to page 14

Tevogen Plans Novel T-cell Therapies Aimed at EBV in MS

US bio-pharma Tevogen Bio has announced plans to develop T-cell therapies targeting the Epstein-Barr virus (EBV), a herpes virus known to be a major environmental risk factor for MS.

The decision comes on the heels of positive safety data from a proof-of-concept Phase 1 Tevogen trial that tested a similar T-cell therapy in people infected with SARS-CoV-2, the virus that causes COVID-19.

The novel genetically unmodified T-cell therapies against EBV will be developed as potential treatments for conditions with a known connection to the virus, including MS and certain cancers. Tevogen plans to make use of its proprietary T-cell platform in developing the T-cell therapies.

EBV is a common virus, mainly transmitted through saliva, but also through other body fluids such as blood and semen. The virus is the leading cause of glandular fever/ infectious mononucleosis, commonly known as mono, or the "kissing disease." It works by infecting B-cells, a type of immune cells involved in MS that are responsible for producing antibodies. After an infection, EBV remains in the body, where it lies dormant inside B-cells for an individual's entire life.

A pivotal study published earlier this year showed that EBV infection may be the leading cause of MS, increasing its risk by 32 times. According to another study, the structural resemblance of EBV and a brain protein called GlialCAM — found on myelin-producing cells — may lead to B-cells wrongly attacking the myelin sheath, leading to myelin loss and nerve damage. EBV is strongly linked with certain lymphomas and nasopharyngeal cancer.

"Recent studies on MS have suggested a probable link between infection with EBV and later onset of the inflammation that degrades the myelin sheath and causes MS," said Neal Flomenberg, MD, Tevogen's chief scientific officer.

Tevogen's T-cell platform uses cytotoxic T-cells, also known as CD8-positive T-cells or killer T-cells. These immune cells have the capacity to kill other cells considered damaged or dangerous, such as those infected with certain viruses and cancer cells.

In MS, cells are collected from a healthy donor and those that target EBV proteins of interest are expanded to millions. After a quick patient-donor match, the EBV-specific cells are infused into the patient's bloodstream. One aim is to prevent the disease's development in people already at risk for MS due to EBV infection. For patients who already have MS, the goal is to mitigate the immune attacks that destroy the myelin sheath, potentially slowing disease progression. **For further information on news stories go to page 14**



When you can no longer live a lie

I now use a wheelchair much of the time and the greatest problem hasn't been the physical one of learning how to propel and turn my chair, but the psychological problem of learning to accept that I really am disabled, and a wheelchair user.

For many years after diagnosis in 1993 I lived in a sort of twilight zone. I constantly told myself: "I may have MS" but to use that well-worn cliché "it doesn't have me". In other words the condition might be written on my medical notes but the sorts of things you associate with the condition were absent. For a brief period after diagnosis I even conned myself that I had been misdiagnosed or that I was one of those extremely rare cases where you have the condition but display no obvious signs. I think it's what they call "clutching at straws", even self-deception or just plain denial.

As time has gone by my gradual physical deterioration means that I can no longer deny what is pretty obvious. Yes, I do have MS and yes it does have me. I'm a pretty typical case of MS, 30 years after diagnosis. And there are many examples of this in other areas of my life. In terms of toileting, I started to use catheters around 2010, 17 years after being diagnosed. What started off as a once every day activity has, in 13 years, become something I do five times a day and to be honest I can no longer urinate without a catheter.

Going for a poo has also become something of a struggle too. Having written about "the tyranny of the toilet" this tyranny has now become my daily reality and each day I can spend up to an hour trying to poo. Walking is a challenge too.

Walking unlike toileting is a visible and public activity and from time-to-time well-meaning people used to approach me and ask if there was something wrong with my leg. This placed me in a difficult position. Did I come clean and watch their faces grimace as I told them it's MS? Or be more vague and say "it's just a leg problem." I usually opted for the latter.

It recently occurred to me that this approach has the unintended consequence of keeping me in a state of denial. The more I said "it's just a leg problem", the more I believed it actually was "just a leg problem" and the more I denied that my MS was now progressive Recently, the walking stick has been replaced with an elbow crutch and a rollator so these little deceits and self-deceptions become more difficult to sustain, nevertheless like many others I resolutely cling to them until reality makes this no longer possible.

Continued on page 11

Continued from page 10 I suppose the point at which this denial or deception became unsustainable was when, two years ago, I bought a manual wheelchair from one of those shops that specialise in disability aids and are now an increasingly common sight on local high streets. After purchase, and true to form, the first thing I did was pack the wheelchair away and refuse to look at it or use it, unable to cope with the new reality of the situation that was staring me in the face.

So, for the past couple of years I have avoided situations where I need to use the wheelchair and instead opt to stagger using the rollator. This situation is sustainable only as long as I don't need to walk for long distances or stand for long periods. Clearly it only works if I can avoid things like queues. What has really created problems for me over the past two years has therefore been the pandemic and the need to queue for things like vaccine jabs at local health centres and even entry to supermarkets. Even careful planning cannot get round the need to queue, as I have discovered increasingly and I have struggled with just the rollator.

I suppose the thing that finally got me to get out the wheelchair and actually use it was where I knew the rollator, which doesn't have a seat, wouldn't take me the distance I needed to go. My elder sister wanted to come from her home in Bath and visit me at a restaurant at the National Exhibition Centre, close to where I live in Birmingham. I have been to this restaurant before and know that it requires a 100 m walk and a descent on an escalator. Following the meal, I would be required to do the journey again in reverse and stand waiting for a taxi to take me home. The whole thing would be impossible. So, I bit the bullet, as they say, and decided to use the wheelchair.

On the day I dusted off the wheelchair, got into it and bit that bullet I was in a state of shock. I saw my reflection in a shop window as I wheeled round the shopping centre to the restaurant. Incidents like these are inevitable stages in the progressive MS journey. They are things I never wanted to happen but given the condition I can hardly claim they were unexpected or unusual. My experience and my journey are pretty typical of other people with progressive MS and I just have to keep on telling myself that fact. I just have to keep on biting that old bullet and staring into shop window reflections and seeing a wheelchair user just say to myself. " I have MS and yes, now MS has me too.

For details of all news and features go to page 14 Photo p1 and p10 hans-moerman-rEOVfkfleok-unsplash

News

MS walking difficulties improve with natural supplement

Daily use of MS14, a natural product derived from Persian medicine, safely led to gains in physical activity and walking for people with MS who have walking difficulties, according to data from a small placebo-controlled trial.

MS14, is a "nutraceutical" derived from Persian medicine practices, contains three main natural ingredients: king prawn (90%), celery (5%), and St. John's wort (5%). MS14 "could be used as a safe supplement along with other medications, including symptomatic and disease modifying therapies, for better management of MS patients," the study's researchers wrote, adding larger trials are needed to validate the findings.

The study, "Effect of MS14 on physical activity of multiple sclerosis patients: a randomized triple-blind placebo-controlled clinical trial," was published in Multiple Sclerosis and Related Disorders. Complementary and alternative medicine practices have gained increasing consideration as components of treatment regimens for complex diseases such as MS.

This includes natural medicines and so-called "nutraceuticals," that consist of dietary supplements such as herbs, vitamins, and minerals that are thought to offer additional benefits while maintaining an optimal safety profile with minimal side effects.

A number of preclinical studies have shown it to be safe and able to modulate components of the immune system implicated in MS. Moreover, MS14 was shown to prevent brain tissue death and inflammation, and ease symptoms in an MS mouse model.

While it was found safe in MS, its potential clinical benefits in this population haven't been extensively studied. Previous work from some of the study's authors found MS14 might improve quality of life for patients, but its effects on other clinical factors aren't known.

Researchers in Iran conducted a randomized, placebo-controlled clinical trial (IRCT20161203031205N3) to evaluate the effects of MS14 on physical activity in MS patients.

Results showed those in the MS14 group had significant increases in IPAQ scores, reflecting an increase in general physical activity. These gains were significantly superior to the placebo group, in whom no significant changes were observed after three weeks.

MS14-treated patients also saw significant improvements in moderate physical activity, while the placebo group didn't. Those in the MS14 group had significantly lower moderate activity levels at the study's start Those in the MS14 group also had significant improvements in fatigue and the timed 10-meter walk test.

For details of all stories go to page 14

News

New anti-inflammation drug to enter trials next year for Prog-MS

US bio-pharma Abata Therapeutics has chosen its first treatment for development in progressive MS -an anti-inflammatory T-cell therapy called ABA-101.Trials are expected in 2024.

The therapy is now in early studies that aim to support an investigational new drug application or IND — a formal request to U.S. regulatory authorities asking for permission to start testing the therapy in humans.

The company's approach is focused on regulatory T-cells, or Tregs — a specialized group of anti-inflammatory immune cells, which normally help to "put the brakes" on excess inflammation in the body.

"Since our inception, we've been acutely focused on advancing transformative therapies for people with autoimmune diseases," Samantha Singer, president and CEO of Abata, said in a company press release.

Like other T-cells, Tregs are equipped with a specialized protein receptor that recognizes a specific molecular target with very high specificity. In most T-cells, the receptor binding to its target triggers the cell to launch an inflammatory attack. But when a Treg's receptor binds to its target, it triggers the cell to secrete anti-inflammatory signalling molecules to reduce inflammation.

"Our approach of leveraging the natural role of Tregs in the immune system enables us to resolve complex inflammatory mechanisms, offering new hope for patients with no treatment options," said Richard M. Ransohoff, MD, co-founder and chief medical officer at Abata, and a venture partner at Third Rock Ventures.

ABA-101 basically involves harvesting Tregs from a patient, then modifying the cells so they have a receptor that will bind to myelin fragments. The cells would then be infused back into the patient. The idea is that the modified Tregs will be activated by damaged myelin, causing an anti-inflammatory Treg response that can reduce the inflammation driving MS.

"ABA-101 utilizes a [T-cell receptor] to target our product specifically to the site of ongoing pathology and to offer the potential for a robust, highly durable effect," Singer said. The drug will be developed as a treatment for people with progressive, non-relapsing forms of MS.

For details of all news stories see page 14

References further details, etc

Page 2 Masitinib research

https://multiplesclerosisnewstoday.com/news-posts/2023/01/03/masitinib-okd-fda-progressive-ms-phase-3-clinical-trial/?utm_source=MS&utm_campaign=8883009c2e-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_b5fb7a3dae-8883009c2e-71290133

Page 3 Foralumab research

https://multiplesclerosisnewstoday.com/news-posts/2023/01/04/edss-1-point-score-drop-2nd-spms-patient-foralumab/?utm_source=MS&utm_campaign=8883009c2e-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_b5fb7a3dae-8883009c2e-71290133

Page 4 Stem cells clinical trial

https://multiplesclerosisnewstoday.com/news-posts/2023/01/11/neural-stem-cell-therapy-ms-tolerated-well-small-trial/?utm_source=MS&utm_campaign=aefbf44ba5-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_b5fb7a3dae-aefbf44ba5-71290133

page 5-6 polio EBV and MS

https://pubmed.ncbi.nlm.nih.gov/35025605/

https://www.who.int/news-room/fact-sheets/detail/poliomyelitis

Page 7 Ocrevus

https://multiplesclerosisnewstoday.com/news-posts/2022/12/21/rrms-ppms-disease-activity-progression-lowered-with-ocrevus/?utm_source=facebook&utm_medium=organic_social&utm_campaign=new_image&utm_content=202301051800

Page 8 Remyelination agent

https://multiplesclerosisnewstoday.com/news-posts/2022/12/20/frequency-advisory-board-guide-remyelination-work-ms/

Page 9 Tevogen T cell therapy

https://multiplesclerosisnewstoday.com/news-posts/2022/12/07/tevogen-plans-novel-t-cell-therapies-aimed-ebv-ms-cancer/?utm_source=MS&utm_campaign=94601ebe02-RSS_EMAIL_CAMPAIGN_US&utm_medium=email&utm_term=0_b5fb7a3dae-94601ebe02-71290133

Page 10-11 wheelchairs

A good place to start your journey to getting a wheelchair is a guide published by Which https://www.which.co.uk/reviews/mobility-equipment/article/choosing-the-best-wheelchair-aAfTd2J7ji39

Page 12 Natural supplement improves walking

https://multiplesclerosisnewstoday.com/news-posts/2022/12/28/natural-supplement-leads-ms-patients-physical-activity-gains/?utm_source=MS&utm_campaign=2124be5758-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_b5fb7a3dae-2124be5758-71290133

Page 13 Anti-inflammatory T cell therapy enters trials in 2024

https://multiplesclerosisnewstoday.com/news-posts/2022/12/15/1st-abata-candidate-aba-101-t-cell-treatment-progressive-ms/?utm_source=MS&utm_campaign=8308af4ed8-RSS_EMAIL_CAMPAIGN_US&utm_medium=email&utm_term=0_b5fb7a3dae-8308af4ed8-71290133

To Contact me email iancookjournalist@yahoo.co.uk or via twitter@iancookMSer

DISCLAIMER:

This ezine is strictly a news and information ezine/website about MS . It does not provide medical advice, diagnosis or treatment. This content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your doctor or other qualified health provider with any questions you may have regarding MS or any a medical condition. Don't disregard professional medical advice or delay in seeking it because of something you have read in this ezine.

To Contact me email iancookjournalist@yahoo.co.uk or via twitter@iancookMSer