

Tysabri (natalizumab) and Natalizumab Biosimilars

- Tysabri (natalizumab)
- Tyruko (natalizumab-sztn)

Disclaimer

Clinical guidelines are developed and adopted to establish evidence-based clinical criteria for utilization management decisions. Clinical guidelines are applicable according to policy and plan type. The Plan may delegate utilization management decisions of certain services to third parties who may develop and adopt their own clinical criteria.

Coverage of services is subject to the terms, conditions, and limitations of a member's policy, as well as applicable state and federal law. Clinical guidelines are also subject to in-force criteria such as the Centers for Medicare & Medicaid Services (CMS) national coverage determination (NCD) or local coverage determination (LCD) for Medicare Advantage plans. Please refer to the member's policy documents (e.g., Certificate/Evidence of Coverage, Schedule of Benefits, Plan Formulary) or contact the Plan to confirm coverage.

Summary

Multiple sclerosis (MS) and Crohn's disease are both chronic inflammatory diseases, although they affect different areas of the body. MS is a neurological condition that affects the central nervous system (brain and spinal cord), whereas Crohn's disease is a type of inflammatory bowel disease that primarily affects the digestive tract. In both MS and Crohn's disease, the body's immune system mistakenly attacks healthy cells, leading to inflammation and damage. The symptoms and severity of these diseases can vary widely among individuals.

Treatment for both conditions often involves medications to reduce inflammation and modulate the immune response. Tysabri (natalizumab) is one such treatment option. It is a monoclonal antibody that works by inhibiting the movement of immune cells into the brain and spinal cord in MS, and into the digestive tract in Crohn's disease, thereby reducing inflammation and damage.

Tysabri (natalizumab) is indicated for the treatment of relapsing forms of MS, to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

Relapsing-remitting phenotype of MS occurs in about 85% of those with MS, progressive disease occurs in ~15% of patients with MS; progression of disease is highly variable. Tysabri (natalizumab) is also indicated for inducing and maintaining clinical response and remission in adult patients with moderately to severely active Crohn's disease who have had an inadequate response to, or are unable to tolerate, conventional therapies and inhibitors of tumor necrosis factor (TNF)-alpha.

NOTE: Access to Tysabri is managed through a Risk Evaluation and Mitigation Strategy (REMS) program known as the TOUCH® Prescribing Program.

- In order to prescribe or dispense Tysabri, healthcare providers and pharmacies need to be certified with the Tysabri Outreach Unified Commitment to Health (TOUCH) Prescribing Program. Prescribers must be registered in the CD TOUCH® or MS TOUCH® Prescribing Programs to prescribe for CD or MS, respectively.
- The TOUCH® Prescribing Program was created to monitor for the risk of progressive multifocal leukoencephalopathy (PML), an opportunistic viral infection of the brain that can result in severe disability or death. Risk factors include presence of anti-JCV antibodies, duration of therapy, and prior use of immunosuppressants. Concurrent use of immunosuppressants, antineoplastics and immunomodulatory therapies can increase the risk of PML and thus concomitant use is not recommended.
- Members who are prescribed Tysabri must be enrolled in the TOUCH Prescribing Program as well. They can do so by calling 800-456-2255. Depending on their condition, they will be enrolled either in the MS-TOUCH program for multiple sclerosis or the CD-TOUCH program for Crohn's disease.

Tyruko (natalizumab-sztn) was approved in August of 2023 as a biosimilar of Tysabri (natalizumab) for the same indications. However, it has not yet been brought to market.

Definitions

"Anti-JCV antibodies" are markers for exposure to the John Cunningham (JC) virus. If present, anti-JCV antibodies are associated with a higher risk of progressive multifocal leukoencephalopathy (PML), an opportunistic viral infection of the brain that can result in severe disability or death.

"Clinically isolated syndrome" refers to a first episode of neurologic symptoms lasting at least 24 hours caused by inflammation or demyelination in the central nervous system.

"Crohn's Disease" is a type of inflammatory bowel disease that can affect any part of the digestive tract, from the mouth to the anus. It causes symptoms such as diarrhea, abdominal pain, weight loss, and fatigue.

"Monoclonal Antibody" is a type of protein made in the lab that can bind to specific substances in the body. Monoclonal antibodies are used to treat many diseases, including some types of cancer and autoimmune disorders.

"Multiple Sclerosis (MS)" refers to a chronic disease that affects the central nervous system (brain and spinal cord), causing symptoms such as fatigue, difficulty walking, numbness or tingling, muscle weakness and spasms, poor balance and coordination, and problems with thinking and memory.

"Relapsing-remitting MS" refers to a disease course characterized by clearly defined attacks of new or increasing neurologic symptoms followed by periods of partial or complete recovery.

"Secondary progressive MS" is a disease course following relapsing-remitting MS that is characterized by a progressive worsening of neurologic function over time with or without relapses.

"TNF-alpha inhibitors" are a type of medication that works by blocking the protein, tumor necrosis factor-alpha (TNF-alpha), which plays a role in causing inflammation in the body. These medications are used to treat a variety of conditions, including rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and inflammatory bowel diseases like Crohn's disease.

Medical Necessity Criteria for Initial Authorization

The Plan considers Tysabri (natalizumab) or a natalizumab biosimilar medically necessary when ALL the following criteria are met for the applicable indication listed below:

1. The member is 18 years of age or older; **AND**
2. The member does NOT have ANY of the following:
 - a. Current or history of progressive multifocal leukoencephalopathy (PML); *or*
 - b. Documentation indicating that the member will use Tysabri (natalizumab) in combination with any of the following:
 - i. Antineoplastic therapy (e.g., cyclophosphamide, doxorubicin, vincristine); *or*
 - ii. Immunosuppressants (e.g., azathioprine, cyclosporine, methotrexate, mycophenolate mofetil, 6-MP); *or*
 - iii. Immunomodulatory therapy (e.g., ocrelizumab, ofatumumab, TNF- α inhibitors - such as adalimumab, infliximab, etanercept, golimumab, certolizumab pegol);**AND**
3. Tysabri (natalizumab) will be dosed within the manufacturer's published dosing guidelines or falls within dosing guidelines found in a compendia of current literature; **AND**
 - *The recommended dose of Tysabri for both MS and Crohn's disease is 300 mg administered by intravenous infusion every 4 weeks (i.e., 1 vial per 28 days). Each single-use vial contains 300 mg natalizumab in 15 mL solution.*
 - *Patients should be observed for one hour post-infusion for the first 12 infusions to assess for the risk of hypersensitivity reactions.*

4. The member meets the medical necessity criteria for the applicable indication listed below:

Crohn's Disease (CD)

5. Prescribed by or in consultation with a gastroenterologist; *AND*
6. The member has a documented diagnosis of moderately to severely active CD with evidence of inflammation (e.g., elevated C-reactive protein, fecal calprotectin, erythrocyte sedimentation rate, and/or imaging findings such as mucosal ulcerations or strictures); *AND*
7. The member is unable to use, or has tried and failed **BOTH** of the following:
 - a. at least **ONE** conventional CD therapy (e.g., corticosteroids, immunomodulators); *and*
 - b. at least **ONE** (1) TNF inhibitors (e.g., Humira [adalimumab], Avsola [infliximab]).

Multiple Sclerosis (MS)

5. Prescribed by or in consultation with a neurologist or a physician who specializes in the treatment of multiple sclerosis; *AND*
6. The member has **ONE** of the following forms of multiple sclerosis:
 - a. Relapsing-remitting (RRMS); *or*
 - b. Active secondary progressive (SPMS); *or*
 - c. Clinically isolated syndrome (CIS); *AND*
7. Meets **ONE** (1) of the following:
 - a. Documentation of highly active or aggressive disease, as demonstrated by at least **ONE** (1) of the following:
 - i. Frequent relapses (≥ 2 in the past year); *or*
 - ii. At least 1 relapse with incomplete recovery and MRI activity; *or*
 - iii. Rapidly advancing disability or cognitive impairment; *or*
 - iv. Disabling relapse with suboptimal response to corticosteroids; *or*
 - v. MRI findings showing high disease activity (e.g., new/enlarging T2 lesions, enhancing lesions); *or*
 - b. Is unable to use, or has tried and failed at least **ONE** of the following:
 - i. Dimethyl Fumarate (generic Tecfidera); *and/or*
 - ii. Fingolimod (generic Gilenya); *AND*
8. Baseline MRI scan will be obtained prior to initiating therapy; *AND*
9. Tysabri will be used as monotherapy for multiple sclerosis (i.e., member is not using and will not use other disease-modifying MS therapies while on Tysabri).

If the above prior authorization criteria are met, the requested product will be authorized for up to 12-months.

Medical Necessity Criteria for Reauthorization

Reauthorization for up to 12-months will be granted if the member has recent (within the last 6 months) clinical chart documentation demonstrating ALL of the following criteria:

1. The member still meets the applicable [Initial Authorization](#) criteria; *AND*
2. Chart documentation shows ONE of the following:
 - a. For Multiple Sclerosis:
 - i. The member has shown a clinical improvement in at least ONE (1) objective measure, such as:
 1. Reduced disease activity on MRI; *and/or*
 2. Improved or stable disability scores; *and/or*
 3. Reduced relapse rate; *and/or*
 4. Improved fatigue or walking assessments; *AND/OR*
 - ii. The member has shown stabilization or improvement in at least ONE (1) MS symptom, such as:
 1. Motor function; *and/or*
 2. Fatigue; *and/or*
 3. Vision; *and/or*
 4. Bowel/bladder function; *and/or*
 5. Spasticity; *and/or*
 6. Walking/gait; *and/or*
 7. Pain/numbness/tingling; *or*
 - b. For Crohn's Disease:
 - i. The member has shown a clinical improvement in at least ONE (1) objective measure, such as:
 1. Reduced inflammatory markers (e.g., fecal calprotectin, C-reactive protein); *and/or*
 2. Improved endoscopic findings; *and/or*
 3. Reduced corticosteroid dose; *AND/OR*
 - ii. The member has shown improvement in at least ONE (1) symptom, such as:
 1. Decreased pain; *and/or*
 2. Reduced fatigue; *and/or*
 3. Decreased stool frequency; *and/or*
 4. Reduced rectal bleeding.

Experimental or Investigational / Not Medically Necessary

Tysabri (natalizumab) for any other indication or use is considered not medically necessary by the Plan, as it is deemed to be experimental, investigational, or unproven. Non-covered indications include, but are not limited to, the following:

- for use in individuals under 18 years of age for any indication. The safety and efficacy of natalizumab in pediatric patients have not been established.
- other autoimmune diseases, such as rheumatoid arthritis, lupus, or psoriasis.

Applicable Billing Codes (HCPCS/CPT Codes)

<i>Service(s) name</i>	
CPT/HCPCS Codes considered medically necessary if criteria are met:	
<i>Code</i>	<i>Description</i>
96365	Intravenous infusion, for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour
J2323	Injection, natalizumab, 1 mg
Q5134	Injection, natalizumab-sztn (tyruko), biosimilar, 1 mg
ICD-10 codes considered medically necessary if criteria are met:	
<i>Code</i>	<i>Description</i>
G35	Multiple sclerosis
K50.00	Crohn's disease of small intestine without complications
K50.011	Crohn's disease of small intestine with rectal bleeding
K50.012	Crohn's disease of small intestine with intestinal obstruction
K50.013	Crohn's disease of small intestine with fistula
K50.014	Crohn's disease of small intestine with abscess
K50.018	Crohn's disease of small intestine with other complication
K50.019	Crohn's disease of small intestine with unspecified complications
K50.10	Crohn's disease of large intestine without complications
K50.111	Crohn's disease of large intestine with rectal bleeding
K50.112	Crohn's disease of large intestine with intestinal obstruction
K50.113	Crohn's disease of large intestine with fistula

K50.114	Crohn's disease of large intestine with abscess
K50.118	Crohn's disease of large intestine with other complication
K50.119	Crohn's disease of large intestine with unspecified complications
K50.80	Crohn's disease of both small and large intestine without complications
K50.811	Crohn's disease of both small and large intestine with rectal bleeding
K50.812	Crohn's disease of both small and large intestine with intestinal obstruction
K50.813	Crohn's disease of both small and large intestine with fistula
K50.814	Crohn's disease of both small and large intestine with abscess
K50.818	Crohn's disease of both small and large intestine with other complication
K50.819	Crohn's disease of both small and large intestine with unspecified complications
K50.90	Crohn's disease, unspecified, without complications
K50.911	Crohn's disease, unspecified, with rectal bleeding
K50.912	Crohn's disease, unspecified, with intestinal obstruction
K50.913	Crohn's disease, unspecified, with fistula
K50.914	Crohn's disease, unspecified, with abscess
K50.918	Crohn's disease, unspecified, with other complication
K50.919	Crohn's disease, unspecified, with unspecified complications

References

1. Butzkueven H, Licata S, Jeffery D, Arnold DL, Filippi M, Geurts JJ, Santra S, Campbell N, Ho PR; REVEAL Investigators. Natalizumab versus fingolimod for patients with active relapsing-remitting multiple sclerosis: results from REVEAL, a prospective, randomised head-to-head study. *BMJ Open*. 2020 Oct 20;10(10):e038861. doi: 10.1136/bmjopen-2020-038861.
2. Chandar, A. K., Singh, S., Murad, M. H., Peyrin-Biroulet, L., & Loftus Jr, E. V. (2015). Efficacy and safety of natalizumab and vedolizumab for the management of Crohn's disease: a systematic review and meta-analysis. *Inflammatory Bowel Diseases*, 21(7), 1695-1708.
3. Clerico M, Artusi CA, Liberto AD, et al. Natalizumab in multiple sclerosis: long-term management. *Int J Mol Sci*. 2017;18(5):940. doi: 10.3390/ijms18050940.[PubMed 28468254]
4. Feagan BG, Sandborn WJ, Hass S, Niecko T, White J. Health-related quality of life during natalizumab maintenance therapy for Crohn's disease. *Am J Gastroenterol*. 2007 Dec;102(12):2737-46. doi: 10.1111/j.1572-0241.2007.01508.x.
5. Feuerstein JD, Ho EY, Shmidt E, et al; American Gastroenterological Association Institute Clinical Guidelines Committee. AGA clinical practice guidelines on the medical management of moderate to severe luminal and perianal fistulizing Crohn's disease. *Gastroenterology*. 2021;160(7):2496-2508. doi:10.1053/j.gastro.2021.04.022[PubMed 34051983].

6. Ghosh S, Goldin E, Gordon FH, et al. Natalizumab for Active Crohn's Disease. *N Engl J Med*. 2003;348(1):24-32.[PubMed 12510039]
7. Kane SV, Horst S, Sandborn WJ, Becker B, Neis B, Moscandrew M, Hanson KA, Tremaine WJ, Bruining DH, Faubion WA, Pardi DS, Harmsen WS, Zinsmeister AR, Loftus EV. Natalizumab for moderate to severe Crohn's disease in clinical practice: the Mayo Clinic Rochester experience. *Inflamm Bowel Dis*. 2012 Dec;18(12):2203-8. doi: 10.1002/ibd.22943. Epub 2012 Mar 14.
8. Lichtenstein GR, Loftus EV, Isaacs KL, Regueiro MD, Gerson LB, Sands BE. ACG clinical guideline: management of Crohn's disease in adults. *Am J Gastroenterol*. 2018;113(4):481-517. doi:10.1038/ajg.2018.27[PubMed 29610508]
9. McManus EJ, Clark KM, Frampton C, Macniven JAB, Schepel J. Extended interval dosing natalizumab and impact on neuropsychological deficits in relapsing-remitting multiple sclerosis. *Mult Scler J Exp Transl Clin*. 2022;8(1):20552173211070752. doi:10.1177/20552173211070752[PubMed 35223079]
10. Montalban X, Gold R, Thompson AJ, et al. ECTRIMS/EAN guideline on the pharmacological treatment of people with multiple sclerosis. *Eur J Neurol*. 2018;25(2):215-237. doi:10.1111/ene.13536[PubMed 29352526]
11. Perumal J, Fox RJ, Balabanov R, Balcer LJ, Galetta S, Makh S, Santra S, Hotermans C, Lee L. Outcomes of natalizumab treatment within 3 years of relapsing-remitting multiple sclerosis diagnosis: a prespecified 2-year interim analysis of STRIVE. *BMC Neurol*. 2019 Jun 8;19(1):116. doi: 10.1186/s12883-019-1337-z.
12. Planche V, Moisset X, Morello R, Dumont E, Gibelin M, Charré-Morin J, Saubusse A, Mondou A, Reuter F, Defer G, Pelletier J, Brochet B, Clavelou P. Improvement of quality of life and its relationship with neuropsychiatric outcomes in patients with multiple sclerosis starting treatment with natalizumab: A 3-year follow-up multicentric study. *J Neurol Sci*. 2017 Nov 15;382:148-154. doi: 10.1016/j.jns.2017.10.008.
13. Rae-Grant A, Day GS, Marrie RA, et al. Practice guideline recommendations summary: disease-modifying therapies for adults with multiple sclerosis: report of the guideline development, dissemination, and implementation subcommittee of the American Academy of Neurology. *Neurology*. 2018;90(17):777-788. doi:10.1212/WNL.0000000000005347[PubMed 29686116]
14. Rindi LV, Zaçe D, Braccialarghe N, Massa B, Barchi V, Iannazzo R, Fato I, De Maria F, Kontogiannis D, Malagnino V, Sarmati L, Iannetta M. Drug-Induced Progressive Multifocal Leukoencephalopathy (PML): A Systematic Review and Meta-Analysis. *Drug Saf*. 2024 Apr;47(4):333-354. doi: 10.1007/s40264-023-01383-4. Epub 2024 Feb 7.
15. Sakuraba, A., Keyashian, K., Correia, C., Melek, J., Cohen, R. D., Hanauer, S. B., & Rubin, D. T. (2013). Natalizumab in Crohn's disease: results from a US tertiary inflammatory bowel disease center. *Inflammatory bowel diseases*, 19(3), 621-626.
16. Sandborn WJ, Colombel JF, Enns R, et al. Natalizumab induction and maintenance therapy for Crohn's disease. *N Engl J Med*. 2005 Nov 3;353(18):1912-25. doi: 10.1056/NEJMoa043335. Erratum in: *N Engl J Med*. 2015 May 21;372(21):2074. doi: 10.1056/NEJMc140055.
17. Targan SR, Feagan BG, Fedorak RN, et al. Natalizumab for the Treatment of Active Crohn's Disease: Results of the ENCORE Trial. *Gastroenterology*. 2007;132(5):1672-1683.[PubMed 17484865]
18. Tyruko (natalizumab-sztn) [prescribing information]. Princeton, NJ: Sandoz Inc. August 2023.
19. Tysabri (natalizumab) [prescribing information]. Cambridge, MA: Biogen Inc; October 2023.
20. Weizman AV, Nguyen GC, Seow CH, et al. Appropriateness of biologics in the management of Crohn's disease using RAND/UCLA appropriateness methodology. *Inflamm Bowel Dis*. 2019;25(2):328-335. doi:10.1093/ibd/izy333[PubMed 30346529]
21. Yamout BI, Sahraian MA, Ayoubi NE, et al. Efficacy and safety of natalizumab extended interval dosing. *Multiple Sclerosis and Related Disorders*. 2018;24:113-116. doi: 10.1016/j.msard.2018.06.015.[PubMed 29982107]

Clinical Guideline Revision / History Information

Original Date: 3/21/2024

Reviewed/Revised: 4/26/2024, 06/27/2024, 12/01/2025