AVASTIN® (bevacizumab)

Media Inquiries: (650) 467-6800

Avastin is a tumor-starving (anti-angiogenic) medicine. Avastin is designed to block a protein called vascular endothelial growth factor, or VEGF. Normal cells make VEGF, but some cancer cells make too much VEGF. Blocking VEGF may prevent the growth of new blood vessels.¹

Unlike chemotherapy that attacks fast-growing cells, like cancer cells, Avastin is designed to prevent the growth of new blood vessels. This includes normal blood vessels and blood vessels that feed tumors.¹



- It has been more than 10 years since Avastin plus IV 5-FU-based chemotherapy was first approved as a first-line treatment for metastatic colorectal cancer (mCRC)
- In that time, Avastin has built a compelling body of evidence and is now approved for ten distinct uses across six different types of cancer in the United States
- Five Phase III studies have met a primary endpoint of demonstrating an improvement in overall survival

Approved Indications



Important Safety Information

POSSIBLE SERIOUS SIDE EFFECTS

Everyone reacts differently to Avastin therapy. So it's important to know what the side effects are. Although some people may have a life-threatening side effect, most do not. Their doctor will stop treatment if any serious side effects occur. Patients should talk to their doctor if there are any signs of these side effects.

Most serious side effects (not common, but sometimes fatal):

- GI perforation. A hole that develops in the stomach or intestine. Symptoms include pain in the abdomen, nausea, vomiting, constipation, or fever
- Wounds that don't heal. A cut made during surgery can be slow to heal or may not fully heal. Avastin should not be used for at least 28 days before or after surgery and until surgical wounds are fully healed
- Serious bleeding. This includes vomiting or coughing up blood; bleeding in the stomach, brain, or spinal cord; nosebleeds; and vaginal bleeding. If a patient has recently coughed up blood or had serious bleeding, they should be sure to tell their doctor

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For full Prescribing Information including Boxed WARNINGS and other important safety information for Avastin, please visit www.avastin.com.

mCRC^{2,3} | 2004

FIRST-LINE TREATMENT

Avastin **reduced the risk of death by 34 percent** (HR=0.66, 95% CI: 0.54-0.81; p<0.001).

AVF2107 Study	Avastin* + IFL N=402	IFL N=411
Median Overall Survival (mOS) (primary endpoint)	20.3 months	15.6 months
Median Progression-Free Survival (mPFS) (secondary endpoint)	10.6 months	6.2 months
	HR=0.54, 95% CI: 0.45-0.66; p<0.001	

*5 mg/kg IV every 2 weeks

AVF2107 STUDY

The approval of Avastin for first-line treatment of mCRC was based on the results of the AVF2107 study, a Phase III, randomized, double-blind study that evaluated Avastin plus IV 5-FU-based chemotherapy (IFL) compared to IFL alone in 813 people with newly diagnosed mCRC.

NSCLC² | 2006

FIRST-LINE TREATMENT			
Avastin reduced the risk of death by 20 percent (HR=0.80, 95% CI: 0.68-0.94; p=0.013).			
E4599 Avastin* + Chemotherapy Chemotherapy Study N=434 N=444			
mOS (primary endpoint)	12.3 months	10.3 months	

*15 mg/kg IV every 3 weeks

E4599 STUDY

The approval of Avastin for first-line treatment of non-squamous NSCLC was based on the results of the pivotal randomized, open-label, activecontrolled Phase III E4599 study. This study investigated Avastin plus chemotherapy (paclitaxel and carboplatin) compared to chemotherapy alone in 878 people with newly diagnosed, unresectable, locally advanced, recurrent, or metastatic, non-squamous NSCLC.

mCRC^{2,3} | 2006

SECOND-LINE TREATMENT AFTER FIRST-LINE CHEMOTHERAPY

Avastin **reduced the risk of death by 25 percent** (HR=0.75, 95% CI: 0.63-0.89; p=0.001).

E3200 Study	Avastin*+ FOLFOX N=286	FOLFOX N=291
mOS (primary endpoint)	13.0 months	10.8 months
mPFS (secondary endpoint)	7.3 months	4.7 months
	HR=0.61; p<0.0001	

*10 mg/kg IV every 2 weeks

E3200 STUDY

The approval of Avastin for second-line treatment of mCRC following disease worsening with first-line chemotherapy was based on the results of the E3200 study, a Phase III, randomized, controlled study of Avastin plus FOLFOX chemotherapy compared to FOLFOX alone in 577 Avastin-naïve people that had progressed following previous treatment with chemotherapy.

mRCC² | 2009

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IRST-LINE TREATMENT	ଔଷ
Avastin reduced the risk of disease worsening by 40 percent	

(HR=0.60, 95% CI: 0.49-0.72; p<0.0001).

AVOREN Study	Avastin*+Interferon alfa-2a N=327	Interferon alfa-2a N=322
mPFS (primary endpoint)	10.2 months	5.4 months
Overall Response Rate (ORR) (secondary endpoint)	30%	12%
	p<0.0001	

*10 mg/kg IV every 2 weeks

AVOREN STUDY

The approval of Avastin for first-line treatment of mRCC was based on the results of the pivotal randomized, double-blind Phase IIII AVOREN study. This study investigated Avastin plus interferon alfa-2a versus interferon alfa-2a alone in 649 people with newly diagnosed mRCC. The study did not demonstrate a significant difference in overall survival.

Study data continues on next page.

Important Safety Information (continued)

OTHER POSSIBLE SERIOUS SIDE EFFECTS (continued)

- Abnormal passage in the body. This type of passage—known as a fistula—is an irregular connection from one part of the body to another and can sometimes be fatal
- Severe high blood pressure. Blood pressure that severely spikes or shows signs of affecting the brain. Blood pressure should be monitored every 2 to 3 weeks while on Avastin and after stopping treatment

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mCRC² | 2013

ML18147 STUDY

SECOND-LINE TREATMENT AFTER FIRST-LINE AVASTIN PROGRESSION

Avastin reduced the risk of death by 19 percent (HR=0.81, 95% CI: 0.69-0.94; p=0.0057).

ML18147 Study	Avastin* + Chemotherapy N=409	Chemotherapy N=411
mOS (primary endpoint)	11.2 months	9.8 months
mPFS (secondary endpoint)	5.7 months	4.0 months
	HR=0.68, 95% CI: 0.59-0.78; p<0.0001	

*5 mg/kg IV every 2 weeks or 7.5 mg/kg IV every 3 weeks

The approval of Avastin for second-line

treatment of mCRC following progression

with an Avastin-based regimen was based on

the results of the ML18147 study, a Phase

study that evaluated the use of Avastin plus

III, randomized, prospective open-label

a fluoropyrimidine-based chemotherapy,

compared to chemotherapy alone, as a

second-line medicine after the disease

fluoropyrimidine-based chemotherapy

overall response rates.

worsened in 820 patients. In the first-line,

all patients received Avastin plus a different

(irinotecan or oxaliplatin-based). The study

did not demonstrate a significant difference in

Cervical Cancer² | 2014

PERSISTENT, RECURRENT OR	
METASTATIC TREATMENT	

Avastin reduced the risk of death by 26 percent (HR=0.74, 95% CI: 0.58-0.94; p=0.0132).

GOG-0240 Study	Avastin* + Chemotherapy N=227	Chemotherapy N=225
mOS (primary endpoint)	16.8 months	12.9 months
ORR (secondary endpoint)	45%	34%

*15 mg/kg IV every 3 weeks

GOG-0240 STUDY

The approval of Avastin plus chemotherapy for treatment of patients with persistent, recurrent, or metastatic cervical cancer was based on the results of the GOG-0240 study. This study investigated Avastin plus chemotherapy (paclitaxel and cisplatin or paclitaxel and topotecan) compared to chemotherapy alone in 452 women with persistent, recurrent, or metastatic cervical cancer (Stage IVb).

Platinum-Resistant Ovarian Cancer² | 2014



Avastin reduced the risk of disease worsening by 62 percent (HR=0.38, 95% CI: 0.30-0.49; p<0.0001).

AURELIA Study	Avastin* + Chemotherapy N=179	Chemotherapy N=182
mPFS (primary endpoint)	6.8 months	3.4 months
mOS	16.6 months	13.3 months
(secondary endpoint)	HR=0.89, 95% CI: 0.69-1.14	
ORR (secondary endpoint)	28%	13%

*10 mg/kg IV every 2 weeks or 15mg/kg IV every 3 weeks

AURELIA STUDY

The approval of Avastin in combination with paclitaxel, pegylated liposomal doxorubicin or topotecan for the treatment of patients with platinum-resistant, recurrent, epithelial ovarian, fallopian tube, or primary peritoneal cancer who had received no more than two prior chemotherapy regimens was based on the results of the AURELIA study. The study investigated Avastin plus chemotherapy (paclitaxel, pegylated liposomal doxorubicin or topotecan) compared to chemotherapy alone in 361 women with disease that had recurred within six months from the most recent platinum-based therapy. The addition of Avastin to chemotherapy demonstrated a statistically significant improvement in investigator-assessed PFS, which was supported by a retrospective independent review analysis. Use should be avoided in patients with ovarian cancer who have evidence of recto-sigmoid involvement by pelvic examination or bowel involvement on CT scan or clinical symptoms of bowel obstruction.

Study data continues on next page.

Important Safety Information (continued)

OTHER POSSIBLE SERIOUS SIDE EFFECTS (continued)

- Kidney problems. These may be caused by too much protein in the urine and can sometimes be fatal
- Infusion reactions. These were uncommon with the first dose (less than 3% of patients). 0.2% of patients had severe reactions. Infusion reactions include high blood pressure or severe high blood pressure that may lead to stroke, trouble breathing, decreased oxygen in red blood cells, a serious allergic reaction, chest pain, headache, tremors, and excessive sweating. The patient's doctor or nurse will monitor for signs of infusion reactions
- Severe stroke or heart problems. These may include blood clots, mini-stroke, heart attack, chest pain, and the heart may become too weak to pump blood to other parts of the body (congestive heart failure). These can sometimes be fatal
- Nervous system and vision problems. Signs include headache, seizure, high blood pressure, sluggishness, confusion, and blindness

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The approval of Avastin for the treatment of platinum-sensitive recurrent epithelial ovarian, fallopian tube or primary peritoneal cancer either in combination with carboplatin and paclitaxel or in combination with carboplatin and gemcitabine chemotherapy, followed by Avastin alone, was based on the results of the OCEANS and GOG-0213 studies.

Platinum-Sensitive Ovarian Cancer² | 2016

RECURRENT, PLATINUM-SENSITIVE TREATMENT (OCEANS)



Avastin reduced the risk of disease worsening by 54 percent (HR=0.46, 95% Cl: 0.37-0.58; p<0.0001).

OCEANS Study	Avastin* + Chemotherapy N=242	Chemotherapy N=242
mPFS (primary endpoint)	12.4 months	8.4 months
ORR (secondary endpoint)	78%	57%
	p<0.0001	

*15 mg/kg IV every 3 weeks

RECURRENT, PLATINUM-SENSITIVE TREATMENT (GOG-0213)

Avastin reduced the risk of death by 16 to 18 percent (eCRF^a HR=0.82, 95% CI: 0.68-0.996; IVRS^b HR=0.84, 95% CI: 0.69-1.01).

GOG-0213 Study	Avastin* + Chemotherapy N=337	Chemotherapy N=336
OS (primary endpoint)	42.6 months	37.3 months
mPFS (secondary endpoint)	13.8 months	10.4 months
	HR=0.61, 95% CI: 0.51-0.72	
ORR (secondary endpoint)	78%	56%
	Number of patients with measurable disease at baseline	
	274	286

* 15 mg/kg IV every 3 weeks

^a Hazard ratio was estimated from Cox proportional hazards models stratified by the duration of platinum free-interval prior to enrolling onto this study per eCRF (electronic case report form) and secondary surgical debulking status.

^b Hazard ratio was estimated from Cox proportional hazards models stratified by the duration of treatment free-interval prior to enrolling onto this study per IVRS (interactive voice response system) and secondary surgical debulking status.

OCEANS STUDIES

The OCEANS study investigated Avastin plus chemotherapy (carboplatin and gemcitabine) compared to placebo plus chemotherapy in 484 women with disease that had recurred after six months from the most recent platinum-based therapy. Overall survival was not significantly improved with the addition of Avastin to chemotherapy.

GOG-0213 STUDY

The GOG-0213 study investigated Avastin plus chemotherapy (carboplatin and paclitaxel) followed by continued use of Avastin alone compared to chemotherapy alone in 673 women with disease that had recurred after six months from the most recent platinum-based therapy.

Study data continues on next page.

Important Safety Information (continued)

SIDE EFFECTS SEEN MOST OFTEN

In clinical studies across different types of cancers, some patients experienced the following side effects:

- High blood pressure
- Too much protein in the urine
- Nosebleeds

- Rectal bleeding
- Back pain
 Headache
- •
- Taste change
- Dry skin
 - Inflammation of the skin
- Inflammation of the nose
- Watery eyes

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AVP/091714/0001(5) www.gene.com A Member of the Roche Group 4

Recurrent Glioblastoma² | 2017

RECURRENT TREATMENT

There was no significant increase in OS with Avastin-based treatment.

EORTC 26101 Study	Avastin* + Iomustine N=283	lomustine N=149
OS (primary endpoint)	HR=0.91;	p=0.4578
mPFS (secondary endpoint) ^a	4.2 months	1.5 months
	HR=0.52, 95% CI: 0.41-0.64	
Corticosteroid Discontinuation ^b (secondary endpoint) ^a	23%	12%

* 10 mg/kg IV every 2 weeks

^a As the primary endpoint was not met, all secondary endpoints are descriptive only.

^b Among the 50% of people taking corticosteroids at baseline who were able to completely stop intake of corticosteroids.

EORTC 26101 STUDY

The approval of Avastin for the treatment of recurrent GBM in adult patients whose cancer has progressed after prior treatment was based on the results for the EORTC 26101 study. This independent Phase III, multicenter, randomized, open-label study evaluated the addition of Avastin to lomustine chemotherapy in 432 people with previously treated GBM.

Stage III or IV Ovarian Cancer² | 2018

TREATMENT AFTER INITIAL SURGERY

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Avastin plus chemotherapy followed by Avastin alone reduced the risk of disease worsening by 48 percent (HR=0.62, 95% Cl: 0.52-0.75; p<0.0001).

GOG-0218 Study	Avastin ^a + Chemotherapy followed by Avastin alone N=623	Avastin⁵ with chemotherapy N=625	Chemotherapy alone N=625
PFS (primary endpoint)	18.2 months	12.8 months ^c	12.0 months
OS (secondary endpoint)	43.8 months	38.8 months	40.6 months
	HR=0.89, 95% CI: 0.76-1.05	HR=1.06, 95% CI: 0.90-1.24	

 $^{\rm a}$ 15 mg/kg IV every 3 weeks for up to 22 cycles total

 $^{\rm b}$ 15 mg/kg IV every 3 weeks for 6 cycles

° HR=0.83, 95% CI: 0.70-0.98; p-value=not significant

GOG-0218 STUDY

The approval of Avastin, in combination with carboplatin and paclitaxel chemotherapy, followed by Avastin as a single agent, for the treatment of patients with stage III or IV epithelial ovarian, fallopian tube, or primary peritoneal cancer following initial surgical resection, was based on results of the Phase III GOG-0218 study. The study investigated chemotherapy alone compared to Avastin plus chemotherapy followed by placebo alone, or Avastin plus chemotherapy followed by Avastin alone in 1,873 women with previously untreated stage III or IV ovarian cancer who already had surgery to remove as much of the tumor as possible.

Important Safety Information (continued)

AVASTIN IS NOT FOR EVERYONE

Talk to your doctor if you are:



UNDERGOING SURGERY

Avastin should not be used for 28 days before or after surgery and until surgical wounds are fully healed

PREGNANT, THINK YOU ARE PREGNANT, PLANNING TO BECOME PREGNANT OR BREASTFEEDING

Data have shown that Avastin may harm your unborn baby. Use birth control while on Avastin. If you stop Avastin, you should keep using birth control for 6 months before trying to become pregnant. Taking Avastin could cause a woman's ovaries to stop working and may impair her ability to have children. Breastfeeding while on Avastin may harm your baby and is therefore not recommended during and for 6 months after taking Avastin.

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Study Specific Safety

STUDY ADVERSE EVENTS IN MCRC

In the first-line mCRC trial, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus IFL (chemotherapy) vs IFL (chemotherapy) alone were weakness (10% vs 7%), abdominal pain (8% vs 5%), pain (8% vs 5%), high blood pressure (12% vs 2%), blood clots in the veins of the body (9% vs 5%), blood clots inside the abdomen (3% vs 1%), a brief loss of consciousness (3% vs 1%), diarrhea (34% vs 25%), constipation (4% vs 2%), reduced white blood cell counts (37% vs 31%), and reduced white blood cell counts that may increase the chance of infection (21% vs 14%).

In the second-line mCRC trial, the most common severe to life-threatening and fatal side effects that increased by 2% or more in people who received Avastin plus FOLFOX4 (chemotherapy) vs FOLFOX4 (chemotherapy) alone were diarrhea (18% vs 13%), nausea (12% vs 5%), vomiting (11% vs 4%), dehydration (10% vs 5%), blockage of the bowel (4% vs 1%), numbness and tingling in fingers and toes (17% vs 9%), nervous system disturbances (5% vs 3%), tiredness (19% vs 13%), abdominal pain (8% vs 5%), headache (3% vs 0%), high blood pressure (9% vs 2%), and severe bleeding (5% vs 1%).

STUDY ADVERSE EVENTS IN NSCLC

In a NSCLC clinical trial, the most common life-threatening to fatal side effects that increased by 2% or more in patients receiving Avastin plus paclitaxel and carboplatin (chemotherapies) compared with those patients receiving paclitaxel and carboplatin (chemotherapies) alone were lower than normal white blood cell count (27% vs 17%), tiredness (16% vs 13%), high blood pressure (8% vs 0.7%), infection without lower than normal white blood cell count (7% vs 3%), blood clots in the veins (5% vs 3%), fever with lower than normal white blood cell count (5% vs 2%), lung inflammation (5% vs 3%), infection with lower than normal white blood cell count (4% vs 2%), abnormally low sodium that could lead to seizure or coma (4% vs 1%), headache (3% vs 1%), and too much protein in the urine (3% vs 0%).

STUDY ADVERSE EVENTS IN MRCC

In one trial, severe to fatal side effects that increased by 2% or more in people with metastatic kidney cancer taking Avastin plus interferon alfa compared with interferon alfa alone were fatigue (13% vs 8%), weakness (10% vs 7%), too much protein in the urine (7% vs 0%), high blood pressure (6% vs 1%), and bleeding (3% vs 0.3%; this included nosebleeds, coughing up blood, bleeding of the gums, bleeding in the small and large intestines, and bleeding in the brain, stomach, respiratory tract, and skull).

STUDY ADVERSE EVENTS IN CERVICAL CANCER

In the CC trial, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus chemotherapy compared to those receiving chemotherapy alone were abdominal pain (11.9% vs. 9.9%), diarrhea (5.5% vs. 2.7%), abnormal opening at or near the anus (3.7% vs. 0%), pain at the anus or the rectum (2.8% vs. 0%), urinary tract infections (8.3% vs. 6.3%), skin infection (3.2% vs. 0.5%), tiredness (14.2% vs. 9.9%), high blood pressure (11.5% vs 0.5%), blood clot formation (8.3% vs 2.7%), low potassium (7.3% vs. 4.5%), abnormally low sodium that could lead to seizure or coma (3.7% vs. 1.4%), dehydration (4.1% vs. 0.5%), lower than normal white blood cell count [neutropenia (7.8% vs. 4.1%), lymphopenia (6.0% vs. 3.2%)], back pain (5.5% vs. 3.2%), and pain in the lower part of your abdomen (5.5% vs. 1.4%).

STUDY ADVERSE EVENTS IN PLATINUM-RESISTANT OVARIAN CANCER

In the prOC trial, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus chemotherapy compared to those receiving chemotherapy alone were high blood pressure (6.7% vs. 1.1%) and hand-foot syndrome (4.5% vs. 1.7%).

STUDY ADVERSE EVENTS IN PLATINUM-SENSITIVE OVARIAN CANCER

In a psOC study, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus carboplatin and gemcitabine (chemotherapy) compared to those who received placebo plus chemotherapy were lower than normal platelet count (40.1% vs. 33.9%), nausea (4.5% vs. 1.3%), tiredness (6.5% vs. 4.3%), headache (3.6% vs. 0.9%), too much protein in the urine (9.7% vs. 0.4%), shortness of breath (4.5% vs. 1.7%), nosebleeds (4.9% vs. 0.4%) and high blood pressure (17.0% vs. 0.9%). Severe to life-threatening side effects of lower than normal red blood cell count (16.2% vs. 18.9%) and white blood cell count (1.6% vs. 4.3%) increased by 2% or more in the chemotherapy group compared to the Avastin plus chemotherapy group.

In a psOC study, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus carboplatin and paclitaxel (chemotherapy) compared to those who received chemotherapy were high blood pressure (11.1% vs. 0.6%), tiredness (7.7% vs. 2.7%), fever and lower than normal white blood cell count (6.2% vs. 2.7%), too much protein in the urine (8% vs. 0%), abdominal pain (5.8% vs. 0.9%), lower than normal blood sodium levels (3.7% vs. 0.9%), headache (3.1% vs. 0.9%) and pain in limbs (3.4% vs. 0%).

STUDY ADVERSE EVENTS IN RECURRENT GLIOBLASTOMA

In a recurrent GBM study, 22% of people discontinued Avastin plus chemotherapy treatment due to adverse reactions compared with 10% of people treated with chemotherapy alone. In people receiving Avastin plus chemotherapy, adverse events were consistent with those seen in previous trials of Avastin across tumor types for approved indications.

STUDY ADVERSE EVENTS IN STAGE III OR IV OVARIAN CANCER

In a stage III or IV ovarian cancer study, the most common severe to life-threatening side effects that increased by 2% or more in people who received Avastin plus chemotherapy followed by Avastin alone or Avastin plus chemotherapy compared to those who received chemotherapy alone were fatigue (9%, 6%, 6%, respectively), high blood pressure (hypertension; 10%, 6%, 2%), decreased platelet count (21%, 20%, 15%) and decreased white blood cell count (51%, 53%, 50%).

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Important Safety Information (continued)

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If you have any questions about your condition or treatment, talk to your doctor.

You may report side effects to the FDA at 1-800-FDA-1088 or www.fda.gov/medwatch. You may also report side effects to Genentech at 1-888-835-2555.

Visit Genentech Access Solutions (www.GenentechAccessSolutions.com) for coverage and reimbursement support, patient assistance, and information resources.

References

- 1. Avastin Patient Site. http://www.avastin.com/patient.
- 2. Genentech. Avastin Full Prescribing Information. 2018.
- 3. Avastin Healthcare Professional Site. http://www.avastin-hcp.com.

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