This consent form contains important information to help you decide whether to participate in a research study.

The study staff will explain this study to you. Ask questions about anything that is not clear at any time. You may take home an unsigned copy of this consent form to think about and discuss with family or friends.

- **Being in a study is voluntary – your choice.**
- **If you join this study, you can still stop at any time.**
- **No one can promise that a study will help you.**
- **Do not join this study unless all of your questions are answered.**

After reading and discussing the information in this consent form you should know:

- Why this research study is being done;
- What will happen during the study;
- Any possible benefits to you;
- The possible risks to you;
- Other options you could choose instead of being in this study;
- How your personal health information will be treated during the study and after the study is over;
- Whether being in this study could involve any cost to you; and
- What to do if you have problems or questions about this study.

**Please read this consent form carefully.**
RESEARCH SUBJECT INFORMATION AND CONSENT FORM

TITLE: Microdrilling Surgery for Full Thickness Chondral Lesions of the Knee Augmented with Concentrated Bone Marrow Aspirate, Platelet Rich Plasma and Hyaluronic Acid

PROTOCOL NO.: BMPRP1001
WIRB ® Protocol #20110205

SPONSOR: Joseph E. Broyles, M.D.

INVESTIGATOR: Joseph E. Broyles, M.D.
7301 Hennessy Boulevard
Baton Rouge, Louisiana 70810
United States

SITE(S): Bone and Joint Clinic of Baton Rouge
Suite 200
7301 Hennessy Boulevard
Baton Rouge, Louisiana 70810
United States

Medical Oncology LLC
8119 Picardy Avenue
Baton Rouge, Louisiana 70809
United States

STUDY-RELATED PHONE NUMBERS: Joseph Edison Broyles
225-776-0050 (24 hours)

SUB-INVESTIGATOR(S): Patrick Stagg, M.D.

This consent form may contain words that you do not understand. Please ask the study doctor or the study staff to explain any words or information that you do not clearly understand. You may take home an unsigned copy of this consent form to think about or discuss with family or friends before making your decision.

SUMMARY
You are being asked to be in a research study. The purpose of this consent form is to help you decide if you want to be in the research study. Please read this form carefully. To be in a research study you must give your informed consent. “Informed consent” includes:

- Reading this consent form,
- Having the study doctor or staff explain the research study to you,
• Asking questions about anything that is not clear, and
• Taking home an unsigned copy of this consent form. This gives you time to think about it and to talk to family or friends before you make your decision.

You should not join this research study until all of your questions are answered.

Things to know before deciding to take part in a research study: The main goal of a research study is to learn things to help patients in the future.

• The main goal of regular medical care is to help each patient.
• No one can promise that a research study will help you.
• Taking part in a research study is entirely voluntary. No one can make you take part.
• If you decide to take part, you can change your mind later on and withdraw from the research study.
• The decision to join or not join the research study will not cause you to lose any medical benefits. If you decide not to take part in this study, your doctor will continue to treat you.
• Parts of this study may involve standard medical care. Standard care is the treatment normally given for a certain condition or illness.
• Other parts of this study may involve experimental (investigational) drugs or procedures that are being tested for a certain condition or illness. An investigational procedure is one that has not been approved by the U.S. Food & Drug Administration (FDA).
• After reading the consent form and having a discussion with the research staff, you should know which parts of the study are experimental and which are standard medical care.
• Your medical records may become part of the research record.
• Your medical insurance may be billed for any standard medical care you receive during the research study. If your insurance company is billed then it may have access to the research records. Insurance companies may not pay for all procedures that are part of a research study.

After reading and discussing the information in this consent form you should know:

• Why this research study is being done;
• What will happen during the research;
• What drug or device or procedures will be used;
• Any possible benefits to you;
• The possible risks to you;
• The other medical procedures, drugs or devices that could be used instead of being in this research study; and
• How problems will be treated during the study and after the study is over.

If you take part in this research study, you will be given a copy of this signed and dated consent form.

PURPOSE OF THE STUDY
You are being invited to participate in this study because you have cartilage damage in your knee that may be treated with microdrilling surgery. Microdrilling is an established
Amended consent 6/2013

APPROVED
AS MODIFIED
May 09, 2013

WIRB®

(non-experimental) surgery used to treat your condition. This treatment provides an environment for cartilage healing. The purpose of this research is to study a protocol that may improve the completeness of recovery of knee cartilage damage following microdrilling surgery.

- Cartilage damage in the knee can cause pain, stiffness and swelling. A treatment is needed for cartilage damage that works better and costs less than currently available treatments. Available procedures, including microdrilling alone, generally produce abnormal, tough cartilage instead of the desired, normal, flexible and smooth cartilage.

- The experimental component of the study procedure involves up to 12 knee injections of bone marrow aspirate concentrate (BMAC), hyaluronic acid, and platelet rich plasma (PRP) over 12 months after microdrilling surgery. The reasoning for these injections are:
  - BMAC and PRP come from your own bone marrow and blood and have shown potential in previous studies for repairing cartilage damage.
  - Hyaluronic acid is a building block for cartilage in the knee. It been shown to improve pain when injected into knees of patients with cartilage damage. Hyaluronic acid injections have also been used in animal studies to generate better cartilage after microdrilling surgery.

**STUDY PROCEDURES**

If you participate in this research study you will be asked to take part in all of the activities or procedures listed in order of occurrence below.

ALL subjects will undergo the same procedures; no placebo will be used.

- **Screening Office Visit** at The Bone and Joint Clinic with Dr. Broyles
  - Physical Examination
  - Baseline X-ray and MRI (use of magnetic signals to create an image)
  - International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring

- **Operative Visit** at the Bone and Joint Clinic
  - Outpatient Microdrilling Surgery – in this surgery, the study surgeon will drill small holes in the bone where there is cartilage damage in your knee (standard procedure)
  - Bone Marrow Aspiration from the pelvic bone. Bone marrow will be centrifuged to obtain bone marrow aspirate concentrate. (standard procedure)
  - Peripheral blood draw - from the arm. Blood will be centrifuged to yield platelet rich plasma (PRP). (standard procedure)
  - Knee injection of PRP, hyaluronic acid, and bone marrow concentrate. (Experimental procedure). You will need to read and sign a separate consent form addendum describing the risks and benefits of this procedure.

- **Post Operative Weeks 1-5** at Bone and Joint Clinic and Medical Oncology, LLC with Dr. Broyles and Dr. Stagg
  - MRI at Bone and Joint Clinic approximately 2 days after surgery
  - Each week, for 5 weeks post op, study participants will undergo bone marrow aspiration from the pelvic bone under local anesthesia and a peripheral blood
draw from the arm. Then participants will receive a knee injection of bone marrow aspirate concentrate (BMAC), PRP and hyaluronic acid. (Experimental procedure)

- Participants will undergo physical therapy 3-5 times per week and use a Continuous Passive Motion (CPM) machine 2 hours per day through post-op week four.

**Post Operative Month 2** - Follow up Office visit at Bone and Joint Clinic
- Physical Examination
- MRI
- International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring
- Participants will continue physical therapy 3 times per week.

**Post Operative Month 4** - Follow up Office visit AND 3 more weekly injections at Bone and Joint Clinic.
- Follow up office visit
  - Physical Examination
  - International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring
- Each week, for 3 weeks starting at Month 4, study participants will undergo bone marrow aspiration and peripheral blood draw and receive a knee injection of BMAC, PRP and hyaluronic acid. (Experimental procedure)
- Participants will continue physical therapy 1-2 times per week

**Post Operative Months 6 and 8** - Follow up Office Visit at the Bone and Joint Clinic
- Physical Examination
- MRI at month 6,
- International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring

**Post Operative Month 12** – Follow up Office Visit AND 3 more weekly injections at Bone and Joint Clinic
- Follow up office visit
  - Physical Examination
  - X-ray and MRI
  - International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring
- Each week, for 3 weeks, study participants will undergo bone marrow aspiration and peripheral blood draw and receive a knee injection of BMAC, PRP and hyaluronic acid. (Experimental procedure)

**Post Operative Months 18, 24, 36, 48 and 60** - Follow up Office Visit at the Bone and Joint Clinic
- Physical Examination
- X-ray at months 24, 48 and 60 MRI at months 12, 18, 24, 36 and 48
- International Knee Documentation Committee (IKDC) and Knee Society (KS) Scoring
RISKS AND DISCOMFORTS

- Microdrilling Surgery—may result in pain, bleeding or infection. Continued knee pain despite the surgery is also a possibility, which could require additional treatments or surgery outside the study protocol to give relief.
- Bone Marrow Aspiration – may result in pain and discomfort at the hip. Also, there is a small risk of bleeding and infection.
- Knee Injection of BMAC, PRP and Hyaluronic Acid - may cause pain at injection site. Other unknown side effects may occur.
- MRI - There are risks associated with MRI if you have certain kinds of metal within your body. The MRI scan does not cause any pain.
- X-ray – the amount of radiation adds up over a lifetime.

There may be side effects that are not known at this time.

Women who are pregnant or nursing a child may not take part in this study. Before entering the study, you and your study doctor must agree on the method of birth control you will use during the entire study. If you think that you have gotten pregnant during the study, you must tell your study doctor immediately. Pregnant women will be taken out of the study.

Your condition may not get better or may get worse during this study.

NEW INFORMATION
You will be told about anything new that might change your decision to be in this study. You may be asked to sign a new consent form if this occurs.

BENEFITS
Your knee cartilage damage may improve while you are in this study; however, this cannot be promised. The results of this study may help people with cartilage damage in the future. It cannot be promised that you will receive any medical benefits from being in this study.

COSTS
Procedures that are done only for the study will not be paid for by your health insurance. No financial support is available for the 12 study injections. You will be responsible for these.
- Bone marrow aspiration kits, 9 at $80 each = $720
- Platelet rich plasma kits, 12 at $201 each = $2,412
- Hyaluronic Acid injections, 12 at $80 each = $960

You will be billed for a Continuous Passive Motion (CPM) machine rental for 4 weeks - $500. Insurance will not cover this and there is no financial support for this procedure.

You will be billed for two MRI scans with cartilage mapping at Pennington Biomedical Research Center. You will have one scan pre-operatively and one scan at 18 months post-operatively. The cost for each scan is $375.

Other potential costs to you:
- You or your insurance company will be billed for Physical therapy. This is covered by insurance following microdrilling surgery. However, you may or may not have co-pays
depending on your insurance policy. You will have 38 visits in 12 weeks. The study staff can help you determine what your cost will be through your insurance.

- You or your insurance company will be billed for the microdrilling surgery. You will be responsible for any co-pay or deductible you have for the surgery. **There may be an additional charge for the surgery that will not be covered by insurance depending on the size of the treated area in your knee.** The study staff can help you determine what your cost will be through your insurance.
- You or your insurance company may also be billed for any other standard medical care given during the course of the study.

You or your insurance company will NOT be billed for post-operative MRI’s or X-rays done at Bone and Joint Clinic. You or your insurance company will NOT be billed for post operative office visits during the study period.

**The total minimum cost for participating in the study is $5,582 plus any applicable fees, co-pays or deductible you have for the surgery and physical therapy.**

**Study participants who have already signed a consent form:** Those who are re-consenting in order to receive the last 3 injections will not be responsible for any additional costs listed here other than the cost for 3 injections. This cost is $1,083.

If you are unsure about the study costs, ask your study doctor to explain the costs that will or will not be financially covered. This discussion should include the costs of treating side effects. Otherwise, you might have unexpected expenses from being in this study.

You may want to talk with your insurance company about its payment policy for standard medical care given during a research study. If your insurance company does not pay, you may be billed for those charges.

**PAYMENT FOR PARTICIPATION**
You will not be paid to take part in this research study.

**ALTERNATIVE TREATMENT**
If you decide not to enter this study, there is other care available to you, such as Microdrilling surgery alone, medication, injections, and therapy. The study doctor will discuss these with you. You do not have to be in this study to be treated for your knee problems.

**AUTHORIZATION TO USE AND DISCLOSE INFORMATION FOR RESEARCH PURPOSES**

**What information may be used and given to others?**
The study doctor will get your personal and medical information. For example:

- Past and present medical records
- Research records
- Records about phone calls made as part of this research
- Records about your study visits
- Information gathered for this research about:
Physical exams
Laboratory, x-ray, and other test results

Who may use and give out information about you?
The study doctor and the study staff.

Your information may be given to:
- The U.S. Food and Drug Administration (FDA),
- Department of Health and Human Services (DHHS) agencies,
- Governmental agencies to whom certain diseases (reportable diseases) must be reported, and
- Western Institutional Review Board® (WIRB®).

Why will this information be used and/or given to others?
- to do the research,
- to study the results, and
- to see if the research was done right.

If the results of this study are made public, information that identifies you will not be used.

What if I decide not to give permission to use and give out my health information?
Then you will not be able to be in this research study.

May I review or copy my information?
Yes, but only after the research is over.

May I withdraw or revoke (cancel) my permission?
You may withdraw or take away your permission to use and disclose your health information at any time. You do this by sending written notice to the study doctor. If you withdraw your permission, you will not be able to stay in this study.

When you withdraw your permission, no new health information identifying you will be gathered after that date. Information that has already been gathered may still be used and given to others.

Is my health information protected after it has been given to others?
There is a risk that your information will be given to others without your permission.

Total confidentiality cannot be guaranteed because of the need to give information to these parties. The results of this research study may be presented at meetings or in publications. Your identity will not be given out during those presentations.

COMPENSATION FOR INJURY
If you are injured or get sick as a result of being in this study, call the study doctor immediately. The study doctor will provide emergency medical treatment. Your insurance will be billed for this treatment.

Your health insurance company may not pay for treatment of injuries as a result of your participation in this study.
VOLUNTARY PARTICIPATION AND WITHDRAWAL

Your participation in this study is voluntary. You may decide not to participate or you may leave the study at any time. Your decision will not result in any penalty or loss of benefits to which you are entitled.

Your participation in this study may be stopped at any time by the study doctor or the sponsor without your consent for any of the following reasons:

- if it is in your best interest;
- you do not consent to continue in the study after being told of changes in the research that may affect you;
- or for any other reason.

QUESTIONS

Contact Adaire O’Brien or Dr. Broyles at (225)766-0050 (24 hours) for any of the following reasons:

- if you have any questions about this study or your part in it,
- if you feel you have had a research-related injury, or
- if you have questions, concerns or complaints about the research.

If you have questions about your rights as a research subject or if you have questions, concerns or complaints about the research, you may contact:

Western Institutional Review Board® (WIRB®)
3535 Seventh Avenue, SW
Olympia, Washington 98502
Telephone: 1-800-562-4789 or 360-252-2500
E-mail: Help@wirb.com

WIRB is a group of people who independently review research.

WIRB will not be able to answer some types of questions, such as questions about appointment times. You may contact WIRB if you cannot reach the research team or if you want to talk to someone else.

Do not sign this consent form unless you have had a chance to ask questions and have gotten satisfactory answers.

CONSENT

I have read this consent form. All my questions about the study and my part in it have been answered. I freely consent to be in this research study.

I authorize the use and disclosure of my health information to the parties listed in the authorization section of this consent for the purposes described above.

By signing this consent form, I have not given up any of my legal rights.
Consent Instructions:
Consent: Subjects 18 years and older must sign on the subject line below

________________________________________
Subject Name (printed)

CONSENT SIGNATURE:

________________________________________
Signature of Subject (18 years and older)       Date

________________________________________
Signature of Person Conducting Informed Consent Discussion       Date
I confirm that the research study was thoroughly explained to the subject. I reviewed the consent form with the subject and answered the subject’s questions. The subject appeared to have understood the information and was able to answer the following questions correctly:

1. What is the purpose of this study?
2. If you decide to be in the study, what will you be asked to do?
3. What is the possible benefit of participating in this study?
4. What are the possible risks of participating in this study?
5. If you decide not to participate in this study, what options do you have?
6. Will participating in this study cost you anything? If so, what will you have to pay for?
7. Do you have to be in this study?
8. If you decide to be in the study, can you leave the study when you want to?

__________________________  __________________________
Printed Name of Person Conducting the Position
Informed Consent Discussion

__________________________  __________________________
Signature of Person Conducting the Date
Informed Consent Discussion