

## The FISH test (fluorescence in situ hybridization) in Multiple Myeloma

This short information sheet helps describe the test called FISH that can be undertaken on a sample of your bone marrow.

### What is the FISH test?

FISH is the short name for a test called Fluorescence in situ hybridisation. FISH is a specific type of genetic test that looks for genetic abnormalities in the plasma cells found in your bone marrow. Genetic testing refers to the laboratory analysis of DNA. DNA is contained in your chromosomes which in turn are present within the nucleus of your cells. DNA is made up of subunits of genetic information. Each subunit is called a gene. The FISH test looks specifically for genetic abnormalities commonly found in myeloma.

### Why are genetic tests carried out in myeloma?

Genetic variations can occur – these are called mutations and can be inherited or can occur spontaneously. In the case of myeloma, there are no known inherited genetic abnormalities that can lead to myeloma. You cannot therefore pass on a myeloma gene to your offspring.

What can occur in myeloma as in other cancers is that genetic mutations can spontaneously occur at the time of the myeloma forming or when it progresses. The specific genetic mutations we look for in myeloma help classify your disease as either high risk or standard risk. These abnormalities are tabled below.

High Risk (20%)	Intermediate Risk (20%)	Standard Risk (60%)
Del 17p 1q21 amplification t(14:16) t(14:20) t(4:14)	t(4:14) del 13	t(11:14) t(6:14)

Adapted Therapy (*mSMART*) Consensus Guidelines 2013. Mayo Clin Proc April 2013. 88(4): 360-376

### What does the FISH test involve?

The FISH test is carried out on the bone marrow sample that is taken as part of the routine tests for myeloma. It does not require an additional blood or bone marrow test on your part. Part of the bone marrow sample is sent to a special laboratory where the FISH test is undertaken. The results are then sent back to your Haematologist here at RPA.

### Why do I need a FISH test?

Understanding the particular genetic mutations that may be present in your myeloma may help inform your Haematologist as to how best to manage your myeloma. They may also help determine if you have a higher risk or standard risk myeloma. In the future we may be able to more specifically match the right treatment to the right genetic mutations that occur in those with myeloma.

### **How does FISH test differ from cytogenetic test?**

Conventional cytogenetic tests assess all of your chromosomes and in myeloma is less sensitive than FISH. FISH test looks more specifically at the genetic mutations commonly found in myeloma.

### **How much will the FISH test cost me?**

FISH tests are yet to be included on the list of tests reimbursed by the Pharmaceutical Benefits Scheme PBS for myeloma. We hope that in time, they will be reimbursed. If you choose to have the FISH test then you will be sent a bill for around \$450. If you feel that you will have financial difficulties in being able to make the payment for your FISH test then talk to your doctor to find if there is a way to support the payment.

### **Where can I read more about FISH tests?**

Your Haematologist is the best person to discuss more specifically the details of the FISH test and its potential implications in your individual case. Please call them to discuss further.

An online source of further information about FISH and other laboratory tests is Lab Tests Online. [www.labtestsonline.org.au](http://www.labtestsonline.org.au)

#### **Author:**

Tracy King, Myeloma Nurse Consultant  
Royal Prince Alfred Hospital

#### **Medical Reviewers:**

Professor Joy Ho, Senior Staff Specialist and Dr Christina Brown, Staff Specialist  
Royal Prince Alfred Hospital

#### **Publication:**

May 2013 (review due May 2015)

**The information in this fact sheet is not intended to replace medical care or the advice of a physician. Your doctor should always be consulted regarding diagnosis and treatment.**

For further information please contact one of our Myeloma Support Nurses  
on our Support Line:  
1800 MYELOMA (1800 693 566)  
or visit our website: [www.myeloma.org.au](http://www.myeloma.org.au)