Roche Personalised Healthcare
Small differences, big effects
Dear reader,

It gives us great pleasure to present you with a personalised edition of this brochure.

The copy you are holding is from the RED 4 group. What does that mean?

We have produced this publication in twelve different colours. Every reader has his or her personal copy, and it differs from over 90 percent of all the other copies. Not one-hundred-percent individual, perhaps – but still very personal, we hope you’ll agree.

And that is precisely what Personalised Healthcare stands for: These medicines have not been designed for individual patients but for use in therapies tailored to the needs of well-defined patient subgroups.

There are twelve versions of the brochure, all identical except for the colour of the inside front and back covers.

Our aim is to visualise the core concept of Personalised Healthcare, i.e. the knowledge that some patient subgroups will benefit particularly well from a medicine due to their genetic makeup. However, the same medication may not have the desired effect in other patient subgroups (despite the same diagnosis).

Interested? Then read on!
Personalised Healthcare means fitting treatments to different groups of patients.

The future of medicine lies in customisation of this kind.

Our vision of Personalised Healthcare is becoming reality.
Patients, doctors and payers expect us to deliver new, safe and effective therapies, making it all the more important for Roche to systematically pursue its Personalised Healthcare strategy. The economic environment is changing constantly and rapidly. It calls for sturdy, sustainable business models that can keep pace with changing circumstances. Accordingly, it is essential for us to:
- optimise the risk-benefit ratio of therapies
- improve the cost-benefit ratio of treatments
- come up with highly differentiated medicines bringing clearly defined benefits for patients.

This is why Roche has opted for this approach to the development of therapies for currently unmet medical needs, devising the Personalised Healthcare strategy to cover the demands of the present and the future.

The strategies employed by Roche to respond to these new challenges are:
- innovation
- drawing upon our core businesses Pharmaceuticals and Diagnostics to focus exclusively on benefits for patients.

The aim of Personalised Healthcare is to make modern medical care more systematic and more effective. It enables us to identify differences between groups of patients and improve our understanding of sub-categories of disease. This knowledge can be used (a) to find the best targets for new medicines and (b) to come up with new biomarkers and diagnostic tests.

What does this mean in practical terms?

Our crucial edge comes from interweaving the expertise of our two Pharmaceuticals and Diagnostics Divisions and drawing upon it throughout the development process, all the way up to approval for new diagnostic tests or new medicines. Very early on, we had the foresight to invest in innovative new approaches like genetic engineering and related molecular sciences, though at the time they were still in their infancy. This gave us a head start.

By combining the specialist knowledge we have in molecular biology with technology we are able to press ahead with Personalised Healthcare at an unrivalled pace. Our unremitting concern is to improve on what we have achieved so far and to find solutions for the unanswered medical questions of today.
Standard therapy means
same syndrome, same therapy.

Personalised Healthcare means
the right therapy for the right group
of patients at the right time.
Why Personalised Healthcare is so important

‘It is more important to know what sort of person has a disease than what sort of disease a person has.’ This verdict on the importance of gearing one’s healing efforts to the individual patient rather than the disease was uttered by Hippocrates, the most famous physician of antiquity.

The modern term for this approach is ‘Personalised Healthcare’. Some 2,400 years after Hippocrates, it is driving a genuine revolution based on the scientific realisation that individuals are different - and so are diseases.

Personalised Healthcare aims to provide targeted therapies tailored to the inherited or acquired risk factors displayed by different subgroups of patients. The foundations for this new, highly sensitive approach are the findings produced by modern research; research that is able to trace the origins of a disease back to its molecular causes and thus supply spectacular insights into the complexity of the factors that lead to disease.

The research work of the last few years has many important successes to its credit. Today, many patients are receiving individual diagnoses and targeted therapies. Headlong progress in the sciences related to molecular biology – genetics, genomics, proteomics - is broadening the foundations for progress of this kind, so it is safe to predict that in the near future many more patients will benefit from such new approaches.

In its Personalised Healthcare strategy, Roche draws upon the knowledge supplied by modern molecular biology in a variety of ways:

- identifying subgroups of patients traditionally regarded as having the ‘same’ disease. This line of inquiry establishes whether the genetic constitution of patients’ cancer displays similar symptoms but requires different treatments
- monitoring the success of a therapy, for example the results of treatment for hepatitis C or osteoporosis
- adjusting the duration of therapy to the individual needs of a patient, for example in the case of hepatitis C
- administering a medicine (say, a cancer medicine) at precisely the right time
- developing products (diagnostic tests and medicines) systematically and efficiently.

Out of ten patients treated on average about half of them benefit. For some the treatment won’t have any effect, and some may even suffer from side effects.

Genetics
Genetics is the study of the regularities and the material foundations involved in the way hereditary features take shape and hereditary systems (genes) are passed on to the next generation.

Genomics
Genomics is the term used for research on the form, function and interaction of genes in an organism.

Proteomics
Proteomics is the study of the form, function and interactions of proteins in an organism. Unlike the relatively static genome, the proteome is a dynamic system likely to alter its qualitative and quantitative protein composition in response to changing conditions (environmental factors, temperature, gene expression, administration of active substances, etc.). For example, a caterpillar and the butterfly it changes into have the same genome. The reason they look so different is that they have different proteomes.

Medicines are like suits – one size doesn’t fit all

Out of ten patients treated on average about half of them benefit. For some the treatment won’t have any effect, and some may even suffer from side effects.
Personalised Healthcare gets down to the molecular roots of disease

What makes individuals so similar and at the same time so unique? And what exactly goes on in the body when people are healthy or sick?

These questions have always intrigued scientists, but it took molecular biology to come up with the really important answers. Major milestones were the discovery of the double helix (the structure of the ‘life molecule’ DNA) in the early 1950s and the sequencing of the human genome at the beginning of the new millennium.

Today, findings from new branches of research like genomics or proteomics enable researchers to refine their understanding of diseases at the molecular level. This is the basis for innovative strategies combining new diagnostic procedures and ongoing biotechnological progress to fight diseases more effectively than ever before.

Molecular diagnosis, targeted therapy: cancer as a case in point

One important insight derived from molecular research is that cancer is not just cancer. The term covers some 250 different conditions, almost all of which affect body tissues. While these conditions display major differences in their symptoms and delayed effects, there is one thing that breast, lung, intestinal or skin cancer all have in common: they are ultimately genetic diseases.

Some genetic defects triggering cancer are inherited, others are acquired in the course of our lives as a result of factors that encourage cancer like tobacco smoke, radiation or viruses. Additionally, life-style and psychological factors can contribute to the development of cancer. All these ‘carcinogens’ function in the same way: they damage the ‘life molecule’ DNA.

Many such defects or damage will never impair the functioning of our genetic systems, not least because the cell has ‘repair services’ at its disposal that can quickly remedy irregularities like a DNA letter in the wrong place. But if there are alterations to genes that are particularly vital for the life of the cell, if the defects cannot be repaired or compensated for, or if a large number of genetic defects accumulate in the course of time, then cancer may be the result.

Such lasting changes interfere with important cellular mechanisms that normally regulate and control how cells proliferate. Cellular growth goes awry and uncontrolled cell division is the upshot. The rogue cells oust and damage healthy tissue. Things become even more serious when these degenerate cells find their way into the circulation or the lymph system and ultimately establish themselves elsewhere in the body as secondary tumours, also known as metastases.

Molecular science for better, more efficient healthcare

Thanks to ultramodern methods for sequencing the genome, including a series of innovative systems from Roche, today’s scientists know of some 350 genes involved in the genesis of cancer. Examples are the breast cancer genes BRCA1 and BRCA2. A more recent example is a gene that has been found in a mutated form in about 50 percent of all cases of skin cancer and in approximately eight percent of all solid tumours.

If we want to beat cancer, we first have to understand the genetics behind it’, said American cancer researcher and Nobel Prize laureate Renato Dulbecco back in the mid-1980s. Later, he added: ‘Any change in the functioning of one gene can therefore be accompanied by changes in the workings of multiple genes and proteins involved in the cell’s self-maintenance and the occurrence of disease.’ The new insights molecular biology had to offer on the genesis of cancer prompted Dulbecco to call for the complete decipherment (sequencing) of the human genome. A rough, incomplete version came out in 2001. Only two years later the sequencing was complete and the full version was published.

The list of genes involved in cancer is by no means complete. This is why present-day scientists participating in the global ‘Cancer Genome Project’ are looking for other key mutations that cause and promote cancer. The aim of this integrated international research venture is to detect all the mutations that cause the 50 most frequent kinds of cancer in humans.
Once the molecular causes of a disease have been identified, we have a chance of developing targeted diagnostic methods and medicines adapted to the genetic constitution of these degenerate cells. Perhaps in future, physicians will no longer speak of skin or lung cancer. Instead the focus will be on the respective molecular blueprint and tumours with specific mutations that can be diagnosed with gene-based methods and treated with specifically targeted medicines, regardless of the part of the body that has been affected.

Personalised Healthcare is the strategy of the future for cancer but for other diseases as well

Personalised Healthcare is the strategy for the future, not only in the case of cancer but also in fighting infectious diseases like hepatitis C or the immune deficiency syndrome AIDS, metabolic disorders like osteoporosis, or inflammatory diseases like rheumatoid arthritis. Indeed this strategy is already optimising the targeted therapy for combating HIV that triggers AIDS. In osteoporosis it helps monitor therapy success, and in the treatment of hepatitis C infections, it makes it possible to say beforehand how long the medication will need to be administered in order to achieve lasting virological response in 80 to 90 percent of patients with HCV genotype 2 or 3.

Gene

What is a gene?
In its simplest form, a gene is a section of DNA (deoxyribonucleic acid) bearing instructions for a particular function. The instructions of the best-known genes are carried out by mobile messenger molecules (messenger RNA, ribonucleic acid) transcribing the relevant section of the DNA. Subsequently, the information is ‘translated’ into protein language by molecular production sites (the ribosomes of the cell plasma) to produce a specific protein molecule.

How many genes are there?
Today, we know that human DNA contains more than 25,000 protein-coding genes. We also know that defects in DNA lead to defects in RNA. This, in its turn, may produce proteins with defective structures, i.e. proteins that cannot perform the tasks they are supposed to perform in the organism.

What do genes have to do with disease?
A chain of defects at the molecular level from gene to protein can cause diseases. Modern molecular biologists are convinced that there is no disease in which defective genes and their subsequent signaling pathways are not involved in some way.

Molecular sciences provide new insights into disease pathways. This improved understanding of disease mechanisms allows the development of targeted treatments, resulting in efficiency increases in healthcare.
What is stomach cancer?  
Stomach cancer can develop in the tissue of the stomach itself or in the junction between the oesophagus and the stomach. In its early stages, the cancer is restricted to these regions. If the disease spreads to the rest of the body in the form of metastases (secondary tumours), it is referred to as advanced or metastatic stomach cancer.

How common is stomach cancer?  
Stomach cancer is the fourth most common kind of cancer worldwide and the second cause of all cancer deaths. It is diagnosed in about one million persons every year. The disease is more widespread in Asia than in the West, men are more frequently affected than women.

How is stomach cancer diagnosed?  
Two main methods are endoscopy, in which a thin tube is introduced into the stomach via the oesophagus, and radiological examination. More recently, tissue diagnostics has become one of the most important procedures of this kind. Modern molecular diagnosis is able to detect the HER2 receptor. In about one of six stomach cancer patients, excess amounts of this protein form on the surface of the tumour cells and encourage their proliferation. Patients with a high expression of HER2 receptors can be given targeted treatment with monoclonal antibodies.

How is stomach cancer normally treated?  
Previously, stomach cancer was treated with a multimodality approach including surgery, combinations of chemotherapy compounds and radiotherapy. Surgery can be successful in the early stages of the disease. In the later stages, chemotherapy – treatment with medicines that inhibit cell division – and/or radiotherapy are usually the only options left.

Where Personalised Healthcare comes in  
In January 2010, approval was given for a medicine developed by Roche to provide targeted treatment for advanced stomach cancer patients with tumours on which the overproduction of the HER2 receptor has been identified. The active substance in this medicine is a biotechnological product. In treatment it is combined with standard chemotherapy. Approval was based on the findings of an international study indicating that this new therapy option can clearly prolong the lives of stomach cancer patients.
How common is breast cancer?
Every year, about 1.4 million new cases of breast cancer are diagnosed worldwide. Advances in the treatment of breast cancer are continuously being made but 450,000 women still die of this disease each year.

How is HER2-positive breast cancer diagnosed?
On average, one in five breast cancer tumours displays an overproduction of HER2 receptors on the tumour cells. Targeted treatment hinges on these receptors. At Roche, experts from both divisions work closely together to ensure the high quality of HER2 tissue tests and to reliably identify those patients who will benefit from targeted treatment. This makes our tissue tests a crucial quality-assurance component in the treatment of breast cancer worldwide.

Where Personalised Healthcare comes in
Patients with an overexpression of HER2 receptors can be given targeted treatment with monoclonal antibodies produced by genetic engineering. Treatment decisions are based on the precise determination of HER2 status. Since it was first approved (1998 in the USA, 2000 in the EU), targeted treatment of this kind has been administered to almost one million patients diagnosed for HER2-positive breast cancer. Response rates, general survival figures and life quality for these patients have improved.

Under development
At Roche, an antibody drug conjugate (ADC) is being studied for HER2-positive metastatic breast cancer. It is designed to inhibit HER2 signaling and deliver a chemotherapy agent directly into HER2-positive cancer cells. The antibody binds to the HER2-positive cancer cells and is thought, based on the data available, to block out-of-control signals that make the cancer grow, while calling on the body’s immune system to attack the cancer cells. Once the ADC is absorbed into the cancer cells, it is designed to destroy them by releasing the chemotherapy agent. The ADC attaches the antibody to the chemotherapy agent using a stable linker which is designed to keep the conjugate intact until it reaches specific cancer cells (see illustrations).

Further, a new monoclonal antibody, a HER2 dimerisation inhibitor, is being studied in early-stage and metastatic HER2-positive breast cancer. HER receptor dimerisation (pairing) is believed to play an important role in the growth and formation of several different cancer types. The new compound is the first investigational medicine developed to specifically prevent the HER2 receptor from pairing with other HER receptors. In doing so, it is thought to block cell signaling, which may inhibit cancer cell growth or lead to the death of the cancer cell. The mechanisms of action of this and an already approved targeted medicine are believed to complement each other as both bind to the HER2 receptor but on different regions.

450,000 women die of breast cancer every year
Almost one million patients diagnosed for HER2-positive breast cancer received targeted treatment.
Non-small cell lung cancer

How common is non-small cell lung cancer and what molecular features does it display?
Non-small cell lung cancer is the most common tumour-conditioned killer worldwide. Despite its apparently uniform classification, this type of tumour varies with the genetic defects underlying it. One example is a mutation of the gene responsible for the formation of the epidermal growth factor receptor. The mutation is found in approximately 30 percent of all patients from Asia, and in about ten percent of those from western countries.

In another subgroup of patients suffering from this disease, the surfaces of the tumour cells display an above-average number of different receptors. Like the epidermal growth factor receptor, these receptors induce out-of-control proliferation of the tumour cells.

Where Personalised Healthcare comes in
Up to now, surgery and chemotherapy have been important treatment options. Today, however, patients suffering from non-small cell lung cancer and having the specific mutations mentioned above first, can be identified by a molecular test. A medicine developed by Roche can block these receptors and disrupt the signal transmission pathway to the inside of the cell, thus blocking tumour growth and triggering tumour cell death.

A study published in June 2011 indicates that if patients with advanced non-small cell lung cancer displaying this mutation are treated with this medicine as first-line therapy, it nearly doubled the time people lived without their disease getting worse compared with standard chemotherapy. In August 2011 the EU authorities approved use of this medicine in treating this aggressive form of lung cancer in first-line therapy. This medicine has already been approved for the later-line treatment of advanced or metastatic non-small cell lung cancer.

A tissue test now in the course of development can also detect the receptors for the different subgroup that can cause uncontrolled proliferation of lung cancer cells. A novel drug candidate currently being developed by Roche binds specifically to these receptors. In conjunction with another active substance, it can prolong survival without further deterioration of the patient’s condition. This is the provisional outcome of a clinical study published in June 2011.
Skin cancer

What is metastatic melanoma?
Metastatic melanoma is the deadliest and most aggressive form of skin cancer. A metastatic melanoma develops when the ‘melanocytes’ – the pigment cells in the skin – proliferate in an uncontrolled way. If identified and treated early, melanomas respond well to treatment. But once metastases (secondary tumours) have formed and spread through the body, the chances of recovery are slight.

How common is metastatic melanoma and what causes it?
Every year, some 200,000 new cases are diagnosed worldwide, most of them in Europe, North America, Australia and New Zealand. The ultraviolet rays of the sun are probably the most significant causative risk factor. Fair-skinned and red-haired people are more likely to be affected by melanoma. Individuals with many or large pigmented moles and people from melanoma-prone families are also more likely to develop the disease.

How is metastatic melanoma diagnosed and treated?
Any change in the size, form, colour or sensitivity of an existing pigmented mole or the formation of a new one can be an indication of melanoma and should be looked at by a doctor. Metastatic melanoma can be treated by surgery, radiation/chemotherapy or therapies fortifying the immune system. The therapies are either combined or used individually depending on the stage the disease has reached.

Where Personalised Healthcare comes in
Skin cancer therapy is the latest example of the approach successfully combining accurate molecular diagnosis with targeted therapy. A new active substance developed jointly by Roche and Plexxikon, a member of the Daiichi Sankyo Group, attacks the protein product of the altered (mutated) gene. The mutated gene causes uncontrolled division of the skin cells. Roche has also developed a companion test to go with the new medication.

Scientists first discovered the mutated gene in metastatic melanoma cells back in 2002. In the meantime it has been detected in approximately half of all these patients. Given this new molecular-biological information, the active substance took only a relatively short time to develop. Targeted therapy is accompanied by a test designed to detect the mutation in the tumour at a molecular level. The test thus identifies patients who are likely to respond to the new substance.

The outcome of a clinical study published in June 2011 shows that the new active substance can prolong the survival of patients suffering from a metastatic melanoma with the mutation described above. Subsequently the active substance agent was given priority review status by the US drug approval authority FDA. In May 2011 applications were submitted both in the USA and in the EU for approval of the active substance and the companion test. In the US, the health authorities simultaneously approved both the diagnostic test and the medicine, in August 2011.

First approval – simultaneously – of the diagnostic test to confirm the mutation and the new medicine which attacks the protein product of the mutated gene
Hepatitis B and C infections

How common are hepatitis B infections?
Up to two billion people worldwide have become infected with the hepatitis B virus (HBV). In many cases the immune system can deal with the virus, but about 350 million of these people develop a chronic infection that can ultimately lead to cirrhosis of the liver and cancer of the liver cells. Estimates suggest that some 600,000 people are killed by the consequences of a chronic hepatitis B infection every year.

The Personalised Healthcare approach to hepatitis B therapy
The number of viruses and the specific antigens of the virus influence the clinical course of the infection and patient response to therapy. The various subgroups of the hepatitis B virus can be identified with new molecular diagnostic methods developed by Roche. The results of these tests assist doctors in predicting the outcome of a standard therapy slowing down the proliferation of the hepatitis B virus and stimulating the body’s defence system.

Evidence of a declining concentration of viral protein indicates the probability of therapy success. Based on this marker, Roche is currently investigating various treatment strategies that will allow a more personalised approach to chronic hepatitis B infection therapy in the future. Due to the immune stimulation effect of this targeted treatment, the number of patients remaining free of the disease years after therapy ends is steadily increasing.

How common are hepatitis C infections?
Hepatitis C viruses (HCV) also cause acute and chronic liver disorders that can result in liver failure, cirrhosis and cancer of the liver. About 200 million people worldwide are infected with hepatitis C viruses.

The Personalised Healthcare approach to hepatitis C therapy
Today, we know that there are four subtypes of the hepatitis C virus. They differ not only in their molecular structure but also in the extent to which they respond to treatment. The various types can be identified by molecular tests developed by Roche enabling predictions of how long the treatment will take and how likely it is to succeed.

Additionally, in the last few years a single mutation in patients’ genome has been found to correlate to treatment outcomes (single nucleotide polymorphisms, SNPs). At present, Roche is working on new active substances designed to help fight the hepatitis C virus. Different treatment regimens will be tested according to the patient’s genome status which will allow a personalised treatment once development is completed.

350 million people are chronically infected with HBV
200 million people are chronically infected with HCV
Osteoporosis

What is osteoporosis and how common is it?
Osteoporosis is a disease in which the density and quality of bones are reduced. Women are affected four to five times as often as men. Statistically, one in three bone fractures in postmenopausal women is caused by osteoporosis, with the likelihood of fractures increasing in old age.

Challenges of osteoporosis treatment
Treatment of osteoporosis with bisphosphonates requires a degree of therapy compliance from the patient. This is especially difficult since osteoporosis is largely an asymptomatic disease, meaning that patients are not likely to feel different if they take their medication or not.

An existing method for measuring bone density (DEXA scans) can be used to determine whether treatment is having the desired effect. However, due to the slow growth of bone, it can take as long as one year before any indicator of the success or failure of therapy can be evaluated by these scans. Experience tells us that many patients lose the motivation to take the medication. In fact studies suggest that more than 50 percent of patients discontinue treatment in the first year.

Fractures are the main cost driver
Osteoporosis becomes especially expensive when fractures occur. Although fewer than 5% of those affected actually suffer a fracture, fractures account for almost two-thirds of total osteoporosis costs. The most frequent and most expensive fracture is that of the hip. Each fracture that can be prevented helps ease the burden on healthcare systems.

The costs of osteoporosis
In Germany alone, to give just one example, osteoporosis affects about 6.3 million people over age 50. That’s roughly one-fifth of the population in this age group. In the patient group over age 74 as many as one in three patients are affected. Yet only one-third of osteoporosis sufferers receive specific therapy. One study calculated that osteoporosis resulted in annual costs of more than five billion euros, thus making it one of the expensive high-prevalence diseases alongside diabetes or heart disease.

Where Personalised Healthcare comes in
New tests developed by Roche use bone markers, which are identifiable from blood samples and contain information on the metabolic activity of the bones. These tests can tell us after only a few days whether treatment is having an effect.

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*Best study, German Institute of Health Care and Social Research, 2011
**Osteoporosis International, 2007, 18:77–84
Personalised Healthcare –
the benefits as seen by the patient and the experts
“The immediate combination of diagnosis, therapy and monitoring of treatment success in hepatitis B infection is a major step forward. This increases the benefits for our patients enormously!”

‘About 350 million people are infected with the hepatitis B virus; about 75 percent of these people are living in Asia. By predicting better and earlier who is going to respond to therapy allows us to provide more effective care. Assurance of our patients also increases their compliance to therapy, resulting in an increase of the desired treatment outcome. For patients who do not respond very well we may be able to modify treatment to increase their chances to respond and benefit from modern therapies.’
‘It’s a very exciting time for us. We are all aware that we are entering a new era of skin cancer treatment!’

‘Skin cancer was an area of high unmet medical need, but with the new compounds becoming available we are going to improve the survival of our patients. The stratification and targeted treatment of this fatal disease represent a major step forward. As next steps we have to establish screening for the relevant genetic mutations. We also need to learn how best to combine the various compounds, some still in development, in order to maximise impact and benefit for patients.’
‘The option of targeted treatment gave me hope and a better quality of life!’

‘Hearing the words, “you have breast cancer” were the most devastating words I had ever heard. I was so frightened, not sure how life would be for me going forward. It gives me peace to know that my oncologist believed in targeted therapy and I am most grateful to have been administered such a treatment which has improved the quality of my life for the past four years.’

Patient
Doretha ‘Dee’ Burrell
Philadelphia, USA
‘In my view, Personalised Healthcare will be the only way of husbanding our resources in a way that makes good business sense!’

‘For the insurance companies, Personalised Healthcare is extremely important because in future we will simply not be able to afford to stick to the “one-size-fits-all” method of providing patients with medicines or technologies in a rough-and-ready manner. Professional analyses tell us that both from an economic and from a medical viewpoint, diagnostics-based, optimised therapy, say for hepatitis C, is superior to standard treatment strategies.’
'As a researcher strongly committed to driving Personalised Healthcare forward, I appreciate some of the distinct advantages of having both Pharmaceuticals and Diagnostics under one roof.'

'In the field of oncology it is particularly helpful to involve diagnostics as early as possible in clinical development. This increases the efficiency and speed of discovering and developing patient selection markers that could have an actual impact in the clinic, and make an important difference to patients’ lives. In order to do this at a high frequency for our drug candidates across multiple indications, a dedicated in-house diagnostics effort is required, and Roche clearly has one of the largest and strongest in the industry.'
‘We see tremendous changes in our tasks. With Personalised Healthcare, diagnostic services gain relevance rapidly since our test results become integral factors for the development of modern treatment strategies.’

‘Increasingly, treatment decisions are based on sophisticated laboratory analysis covering complex diseases, cancer for example. Modern diagnostic methods enable us to provide precise data and thus offer a reliable basis for treatment decisions. Rapid initiation of the right therapy and an optimised use of the limited resources of our healthcare system result from this strategy. This is a real win-win situation for patients and for society as a whole.’
Research and development at Roche: a unique symbiosis

There is unrestricted, cross-divisional cooperation between scientists in research and development at Roche – from early research all the way through to the marketing of our products. This is a unique asset that distinguishes Roche from other companies. Close cooperation of this kind is also the basis for the successful implementation of our Personalised Healthcare strategy.

The diagnosis and therapy options for skin cancer (see pp. 20–21) submitted to the drug authorities for approval are an instance of the advantages of having research and development under one roof. The entire process from initial clinical studies to the application for approval took only five years. Normally, seven to eight years are standard. For patients waiting for a treatment option, this time gain makes a very important difference.

As the syndromes referred to in this brochure indicate, a number of our products have been successfully integrated into personalised therapy strategies in the fields of oncology, virology and metabolic disorders. Various other targeted medicines and companion tests are at an advanced stage of development, including active substances against breast and lung cancer, hepatitis C and asthma. At present, Roche’s research efforts are focused very strongly on the development of new therapies for inflammatory diseases and disorders of the central nervous system.

Positive data from a large number of development projects have recently been presented at major scientific and medical conferences and published in renowned journals. This is another impressive indication that Roche’s Personalised Healthcare strategy is a front-line campaigner against diseases and rapidly gaining significance – for the benefit of patients.