

## Contact

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## How to reach the Institute

Our institute is located in the south-west of Bochum, on the grounds of the clinic “Bergmannsheil”.

### By plane:

- Düsseldorf - International Airport (DUS)
- Frankfurt/Main - International Airport (FRA)

From these airports train-connections lead to Bochum Central Station directly.



### By public transport:

- Take tram no. 308/318 from Bochum Central station, direction Hattingen/Dahlhausen and get off at “Bergmannsheil”

### By car:

- Motorway A 43/44 Exit “Bochum-Querenburg” to “Zentrum”
- Motorway A 40 exit “Bochum-Stahlhausen” to “Zentrum”

There are road signs directing you to “BO-Zentrum” and “Bergmannsheil”.

You can use the parking facilities at Bergmannsheil.

## Molecular Medicine

The Molecular Medicine center is divided into the following divisions:

- Molecular Tumor Research
- Molecular Genetics

Research at the Molecular Medicine center focuses on the mechanisms of carcinogenesis and early diagnosis of work-related cancer. This also includes the investigation of synergistic interactions of different carcinogens in settings of mixed exposure. A number of tools have been established and are continuously refined to detect changes in the genome and epigenome that are connected to the impact of hazardous substances and the development of cancer and other occupational diseases.

Cutting-edge analysis methods are employed in order to identify specific patterns in gene expression and new biomarkers for early detection. Together with the Medicine, Allergy/Immunology and Epidemiology centers of competence, interdisciplinary approaches are pursued to validate promising new molecular markers for early detection of cancer in prospective cohort studies. A further research focus is to study the relationship between sequence variations in the genes of enzymes, which metabolize xenobiotic substances, and into the susceptibility to occupational hazardous substances.

## Epidemiology

The Epidemiology center is divided into the following divisions:

- Epidemiology
- Statistics
- Epidemiological Advice

The research at the Epidemiology center emphasises on molecular epidemiology for the evaluation of the carcinogenicity of hazardous substances and for the early detection of diseases, as well as traditional epidemiology. Statistical methods are employed to investigate the health effects of known or suspected occupational carcinogens. The investigation of the shape of dose-response curves, the interaction between hazardous substances, and the control of potential confounders are major tasks of statistical modeling. Mixed exposures are of particular interest.

The center cooperates with the other centers of competence of the institute in planning and conducting of studies according to Good Epidemiological Practice and performs the statistical data analysis. This includes building up databases for data entry and analysis of complex study designs.

The Epidemiology center of competence supports the German Social Accident Insurance and its members, and also various other bodies, in evaluating the effects of hazardous substances upon health.



— Research — Teaching — Advice —

...for the health protection  
of 70 million insured persons

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## The Institute

The research institute for prevention and occupational medicine is the facility of the German Social Accident Insurance (DGUV) focused on the research for health protection at the workplace and in educational institutions.

Complex occupational questions are answered in an interdisciplinary concept of five centers of competence:

- Medicine
- Toxicology
- Allergology/Immunology
- Molecular Medicine
- Epidemiology

The IPA supports various areas: It gives advice to the statutory accident insurance and their members – the institutes for statutory accident insurance and prevention and the public sector accident insurers – concerning occupational medicine questions. Furthermore the scientists contribute in various scientific committees and in committees of the German social accident insurance.

The IPA is an institute of the Ruhr-Universität Bochum and therefore responsible for teaching courses on Occupational Medicine.

The German Social Accident Insurance and the German Social Accident Insurance Institution for the raw materials and chemical industry (BG RCI) are the supporting organizations of the IPA. The director of the IPA is Professor Dr. Thomas Brüning.

### Contact:

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## Medicine

The medicine center provides the following divisions:

- Occupational Medical Research and Advice
- Outpatient Clinic/Pneumology
- Occupational Dermatology
- Experimental Occupational Medicine

The center is focused on occupational lung and airway diseases as well as occupational skin diseases and cancer. An essential target of research is the further development of already existing diagnostic procedures for prevention and compensation and the establishment of new procedures, in particular non-invasive diagnostic methods.

The occupational dermatology accomplishes examinations of occupational skin diseases. Here the knowledge of occupational dermatology and allergology is connected with analytical toxicological competence.

The endowed professorship „Experimental Occupational Medicine“ focuses health risks associated with occupational exposures to hazardous substances. Methods range from cell culture assays to experimental human studies in the exposure laboratory (ExpoLab).

Medical opinions concerning occupational and environmental diseases represent further activities, and also occupational preventive medical examinations are provided to companies.

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## Toxicology

The toxicology center is divided into the following divisions:

- Human Biomonitoring
- Cell Biology
- Genetic Toxicology
- Toxicological Advice

The main areas of research focus on biological monitoring at the workplace and risk assessment after exposure to hazardous substances. The emphasis is on the development of new biomarkers of exposure and effect and on the application of new analytical, biological and biochemical methods in order to precisely measure chemical exposures and to identify toxic, carcinogenic and mutagenic effects in exposed humans.

Studies on the effect of hazardous substances at cellular and molecular level are also necessary for the assessment of risks presented by hazardous substances at the workplace. Cell biology methods can be used to study the mechanisms of action of hazardous substances on a particular target tissue in vitro by comparing treated and untreated cells.

The competence center Toxicology offers a wide range of human biomonitoring analyses for detection of hazardous substances commonly found at the workplace. These analyses can be used to clarify scientific issues and to support prevention work.

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## Allergology/Immunology

The allergology and immunology center is divided into the following divisions:

- Allergology
- Immunology
- Advice and diagnostics

The research is focused on the pathomechanisms of respiratory and skin diseases induced by workplace-related allergens and/or irritants including the identification of occupational sources of sensitization and irritation. The research includes examinations due to occupational allergies, caused by flours, enzymes, mites, fungi, molds, natural rubber latex, animal dander, isocyanates and wood dust. Furthermore the chemical-irritative effect of vapours and aerosols of hazardous substances on the airways are assessed by non-invasive methods and new biomarkers. Methods for allergen quantification and assessment of microbial components of anorganic dust are established.

The competence center's findings are channelled into the standardization of methods for the diagnosis of allergic diseases and into the assessment of the clinical and diagnostic impact of non-invasive methods. Detection methods for exposition control at the workplace are developed for risk evaluation.

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