



# IPA

Institut für Prävention und Arbeitsmedizin  
der Deutschen Gesetzlichen Unfallversicherung  
Institut der Ruhr-Universität Bochum



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komm **mit** mensch  
Sicher. Gesund. Miteinander.

— Research — Teaching — Advice —

...for the health protection  
of 80 million insured persons

RUHR  
UNIVERSITÄT  
BOCHUM

**RUB**



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## The Institute

The Institute for Prevention and Occupational Medicine (IPA) investigates occupational diseases, work-related illnesses and their causes. It promotes the development of methods for their prevention and diagnosis on the basis of medical science. In this way, the IPA supports the statutory accident insurance institutions (GUV) in fulfilling their legal mandate for research in accordance with SGB VII.

The central focuses: Research, advice, analytics and qualification are oriented to the direct requirements of the statutory accident insurance institutions and are correspondingly practice-oriented.

The IPA is organized into five competence centers: Medicine, Toxicology, Allergology/Immunology, Molecular Medicine and Epidemiology, which work closely together on an interdisciplinary basis.

In continuous dialog with the accident insurance institutions, the approximately 150 employees address issues in the fields of prevention and occupational diseases at the workplace and educational institutions.

The IPA is an institute of the Ruhr-University Bochum and therefore responsible for teaching and research in occupational medicine.

### Contact:

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## Medicine

The center of medicine consists of the following divisions:

- Occupational Medical Research and Consulting
- Outpatient Clinic/Pneumology
- Occupational Dermatology
- Experimental Occupational Medicine
- Occupational Health Services

The center is focused on occupational respiratory diseases, occupational skin diseases and cancer. A major purpose of the research is the improvement of diagnostic methods for prevention and compensation and the establishment of new methods, especially non-invasive diagnostic tools.

The division of occupational dermatology carries out examinations of occupational skin diseases. Here, the knowledge of occupational dermatology and allergology is combined with analytical toxicological competence.

The division of experimental occupational medicine investigates health risks from exposure to hazardous substances. The methods range from cell culture tests to experimental human studies in the exposure laboratory (ExpoLab).

Medical assessments on occupational and environmental diseases represent further activities. In addition, health preventive medical examinations are provided to companies.

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## Toxicology

The center of toxicology is divided into the following divisions:

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

The main topics are exposure assessment using blood and urine samples of employees and the detection of effects of hazardous substances on the molecular level. State-of-the-art analytical and molecular biological methods are used to determine occupational exposures and the effects of hazardous substances.

The entire range of the dose-response relationship is assessed. This evaluation comprises the detection of exposures to hazardous substances and the occurrence of altered biological structures and functions in the organism. The research includes workplace, cell culture and biomarker studies for the diagnosis of occupational diseases.

The spectrum of hazardous substances which are analyzed includes, among others, polycyclic aromatic hydrocarbons, solvents and metals. By integrating all results, successful strategies for primary and secondary health preventive measures of occupational diseases are developed.

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## Allergology/Immunology

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

- Allergology
- Immunology
- Consulting and diagnostics

Pathomechanisms are investigated resulting in the development of diseases of the upper and lower respiratory tract caused by occupational allergens and irritants, respectively. The spectrum of occupational allergens comprises flours, enzymes, animal dander, isocyanates and wood dusts. The focus is on the characterization and development of detection systems for allergens and bioaerosol components, as well as quality-assured diagnostics. In addition, the effect of different workplace substances, irritants and bioaerosols on the respiratory tract is investigated using non-invasive methods and biomarkers.

The findings of the competence center are used in the standardized diagnosis of allergic and inflammatory respiratory diseases and in the assessment of the clinical and diagnostic relevance of non-invasive methods. For risk evaluation at workplaces, practice-relevant quantitative detection methods for exposure control are developed and applied.

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## Molecular Medicine

The Molecular Medicine is divided into the following divisions:

- Molecular Tumor Research
- Molecular Genetics

Research focuses on the development of non-invasive biomarkers for the early detection of cancer and their transfer into secondary prevention. For instance, a blood test for the early detection of mesothelioma has been successfully implemented. In addition, biomarkers for the therapy of occupational cancers are studied. Furthermore, the mechanisms of carcinogenesis as a result of exposure to hazardous substances are investigated. State-of-the-art molecular methods are used to identify changes in genetic material and epigenetic regulation of occupationally induced tumors.

Together with the other competence centers, a central biobank is maintained and interdisciplinary approaches for the early cancer detection are pursued in the context of follow-up examinations. The focus is on asbestos-associated tumors of the lungs and pleura as well as tumors of the urogenital tract.

The expertise of the competence center is used in various advisory topics relevant to occupational medicine and the accident insurance institutions.

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## Epidemiology

The Epidemiology center is divided into the following divisions:

- Epidemiology
- Statistics
- Epidemiological Consulting

Epidemiology ensures quality-assured planning, data collection, and statistical evaluation of projects, especially in the quantification of exposures and the evaluation of complex models.

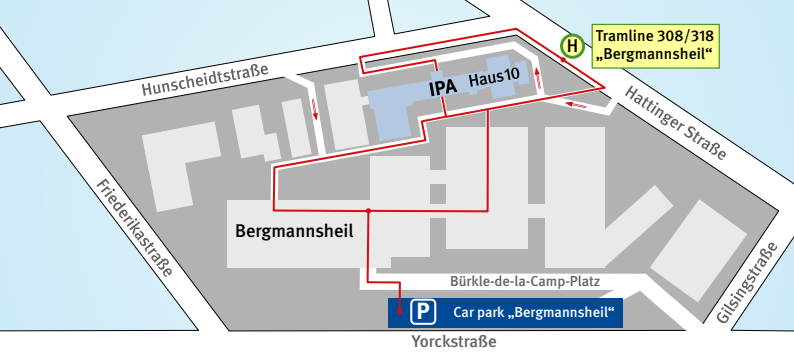
Research focuses on studies of the carcinogenicity of hazardous substances and their interaction in the development of cancer. Possible health risks due to shift work are also a focus of research. To identify and validate biomarkers for early cancer detection, biological samples are integrated in the institute-wide biobank. The expertise in the competence center ensures that current issues relating to occupational safety and health can be dealt with quickly and efficiently in new research projects.

The competence center Epidemiology supports the German Social Accident Insurance and its members as well as various public bodies in occupational medicine and epidemiological issues.

### Contact:

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## How to reach the Institute



Our institute is located in the south-west of Bochum, on the campus of the University Hospital “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 448 Exit “Bochum-Stahlhausen” to “Zentrum”

There are road signs directing you to “BO-Zentrum” and “Bergmannsheil”. You can use the parking facilities at Bergmannsheil.

## Contact

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