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Dear colleagues, honored guests, ladies and gentlemen,

It is an honor and a pleasure for me to welcome you to Munich, to our department, and to the First International Meeting on Molecular Staging of Cancer. We are happy that our meeting has attracted so many national and international speakers, well-known experts in their field, and that it can be held under the auspices of the German Society of Surgeons, its subdivision of Molecular Oncology, the Metastasis Research Society of the United States, and the Professional Board of German Surgeons.

The meeting was called because there is still a large gap between what modern research has discovered about the biology and molecular characteristics of various cancers and clinical practice. On the one hand, experimental fields such as molecular biology have been defining the biological behavior of tumor cells – e.g., regarding proliferation, immortalization, transformation, invasion, dissemination, and the process of metastasis – with an amazing rate of progressive knowledge. But on the other hand, for the definition of patient subgroups regarding individually adjusted clinical decision making on tumor surgery, neoadjuvant/adjuvant therapy, and follow-up, the clinician still uses long-established tumor staging systems which are exclusively defined by morphological criteria.

Gradually, of course, experimental medicine cannot be prevented from having an impact on clinical and surgical decisions. There are examples that already show how theoretical knowledge of individual tumor biology can define the therapeutic strategy for cancer patients. These examples include multiple endocrine neoplasia (MEN) type II, which can be diagnosed with a high specificity by a mutation in the \textit{ret} proto-oncogene. Diagnosis of this mutation has already led to the surgical consequence of prophylactic thyroidectomy in carriers. Other examples are hereditary colorectal cancers such as familial adenomatous polyposis coli (FAP), in which a mutation in the APC tumor suppressor gene can select high-risk individuals out of a suspect family. As a surgical consequence, prophylactic colectomy is being discussed for severely affected individuals. In breast cancer, mutations of the BRCA1/2 genes can identify familial breast cancer syndromes, and the detection of
ErbB-2-receptor in individual breast cancers has led to a new adjuvant therapy concept involving treatment with Herceptin. These examples clearly show how an integration of experimental medicine into clinical thinking can benefit the cancer patient.

However, we think that these examples are only the beginning of a development which can possibly lead to a paradigm shift. The objective of our meeting is to outline what the development will be, how future molecular staging models could look, which markers are likely to become candidates, and how they can be defined. Furthermore, the meeting will ask what impact further promising molecular discoveries can or will have on the selection of patients at high risk for disease, on surgical tumor therapy, on adjuvant therapy, and on follow-up. The meeting aims to:

1. Focus on specific topics that we believe will have a high potential of becoming candidates for new molecular staging models. These topics include:

- **Tumor-associated proteolysis.** Evidence has accumulated in the past years that the process of invasion and metastasis is, at least in part, achieved by the overexpression of proteases and their inhibitors, which lead to an efficient degradation of the extracellular matrix and basement membranes of vessels. Talks on this topic will show how these proteases are upregulated in tumor cells, how they function, give an early status report on strategies to inhibit them, and suggest how they can be integrated into staging models.

- **Minimal residual disease.** There has been strong evidence that also in epithelial solid tumors a so-called minimal residual disease (MRD) component can be detected even in early tumor stages. This MRD component is postulated to contribute to tumor recurrence even after the primary tumor has been curatively surgically resected. The meeting will discuss methods of MRD detection and their limitations, give an actual status on the prognostic impact of MRD in different carcinoma types, and outline how molecular phenotyping and long-term follow-up could help to establish MRD as a clinically helpful staging marker.

2. The meeting introduces different promising markers within different clinical models and cancer types. This will involve different tumor entities such as colon, gastric, breast, pancreatic and skin cancer, and it will address hereditary cancer syndromes as well as sporadic cancer types.

3. The meeting presents methodology that can help to define new staging models, including not only new molecular technology such as microarrays or proteomics, but also biostatistical methods such
as neuronal networks. Additionally, the role and strategies of bio-tech companies in this context, in the search for and transfer of staging markers into clinical applications, will be discussed.

And finally, the meeting presents the first therapeutic concepts using different molecular markers which may be integrated into surgical and medical tumor therapy in the future. It also introduces new technology which can serve as an efficient tool to target molecular markers.

In conclusion, I hope that this meeting will illustrate that, especially as clinicians, it is imperative that we get used to the increasing importance of diverse molecular markers which will clearly influence our clinical decisions, including the staging of disease, the definition of precise prognostic subgroups, the planning of surgical strategies in tumor surgery, neoadjuvant and adjuvant therapy, and the clinical follow-up of our patients. Ultimately, we postulate that this will result in a more and more individualized multidisciplinary tumor therapy, combining theoretical concepts with the clinic.

It is an exciting development bearing outstanding chances, and again, ladies and gentlemen, thank you all for coming to Munich from all over the world. I wish all of us a pleasant, informative, interesting, and exciting meeting, and on behalf of the organizers and myself, to all of you: Welcome.

Klinikum Grosshadern

Friedrich Wilhelm Schildberg
## Contents

### 1 Reviews

The Urokinase Receptor (uPAR, CD87) as a Target for Tumor Therapy: uPA-Silica Particles (SP-uPA) as a New Tool for Assessing Synthetic Peptides to Interfere with uPA/uPA-Receptor Interaction ........................... 3

*E. Guthaus, N. Schmiedeberg, M. Bürgle, V. Magdolen, H. Kessler, M. Schmitt*

Molecular Regulation of Urokinase-Receptor Gene Expression as One Potential Concept for Molecular Staging and Therapy ........................ 15

*H. Allgayer*

Stromal Cell Involvement in Cancer .................................. 31

*K. Almholt, M. Johnsen*

Inhibition of the Tumor-Associated Urokinase-Type Plasminogen Activation System: Effects of High-Level Synthesis of Soluble Urokinase Receptor in Ovarian and Breast Cancer Cells In Vitro and In Vivo ........ 43


Molecular Mechanisms of Carcinogenesis in Gastric Cancer ........ 65

*H. Höfler, K.-F. Becker*

Clinical Implications of Molecular Diagnosis in Hereditary Nonpolyposis Colorectal Cancer ............................................. 73

*G. Möslein*

Minimal Residual Disease in Gastric Cancer ........................... 79

*H. Seeliger, H. Spatz, K.-W. Jauch*

Minimal Residual Disease in Breast Cancer and Gynecological Malignancies: Phenotype and Clinical Relevance ....................... 89

*F. Roggel, S. Hocke, K. Lindemann, S. Sinz, A. Welk, M. Bosl, M. Pabst, N. Nusser, S. Braun, M. Schmitt, N. Harbeck*
Advanced Statistical Methods for the Definition of New Staging Models
R. Kates, M. Schmitt, N. Harbeck

Clinical Implications of the EGF Receptor/Ligand System for Tumor Progression and Survival in Gastrointestinal Carcinomas:
Evidence for New Therapeutic Options

2 Original Papers

Minimal Residual Disease in Bone Marrow and Peripheral Blood of Patients with Metastatic Breast Cancer
J. Bischoff, R. Rosenberg, M. Dahm, W. Janni, K. Gutschow

Estrogen Receptor Expression Profile of Disseminated Epithelial Tumor Cells in Bone Marrow of Breast Cancer Patients
N. Ditsch, B. Mayer, M. Rolle, M. Untch, F.W. Schildberg, I. Funke

Detection of Circulating Tumor Cells in Blood Using an Optimized Density Gradient Centrifugation
R. Gertler, R. Rosenberg, K. Fuehrer, M. Dahm, H. Nekarda, J.R. Siewert

Antitumoral and Antimetastatic Effects of Continuous Particle-Mediated Cytokine Gene Therapy

Genetic Subtyping of Renal Cell Carcinoma by Comparative Genomic Hybridization

Telomere Length and hTERT Expression in Patients with Colorectal Carcinoma

Estimation of Concentration of Chosen Adhesive Factors in Suprarenal Tumours of “Incidentaloma” Type
K. Kolomecki, H. Stępień, T. Stępień, Z. Pasieka, K. Kuzdak
Evaluation of the Levels of bFGF, VEGF, sICAM-1, and sVCAM-1 in Serum of Patients with Thyroid Cancer ............................... 189
  Z. Pasieka, H. Stępień, J. Komorowski, K. Kołomecki,
  K. Kuzdak

Molecular Whole-Body Cancer Staging Using Positron Emission Tomography: Consequences for Therapeutic Management and Metabolic Radiation Treatment Planning ......................... 195
  M. Schmücking, R.P. Baum, F. Griesinger, N. Presselt,
  R. Bonnet, C. Przetak, A. Niesen, J. Leonhardi, E.C. Lopatta,
  B. Herse, T.G. Wendt

Recurrences of Thyroid Cancer After Radical Surgery and Complementary Treatment: Are Macroscopic, Microscopic, Scintigraphic, and Biochemical Criteria Sufficient in the Evaluation of Radicality of Primary Treatment? .. 203
  L. Pomorski, J. Cywiński, K. Kołomecki, Z. Pasieka,
  M. Bartos, K. Kuzdak

3 Summary

Summary and Congress Report: Molecular Staging of Cancer – Concepts of Today, Therapies of Tomorrow ....................... 211
  H. Allgayer, M.M. Heiss, F.W. Schildberg