# BioNTech mRNATechnology

<table>
<thead>
<tr>
<th>Platform</th>
<th>Studies</th>
<th>Indication</th>
<th>Phase</th>
<th>Status</th>
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<tbody>
<tr>
<td>FixVAC</td>
<td>MERIT</td>
<td>Melanoma</td>
<td>Phase I</td>
<td>Completed</td>
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<tr>
<td></td>
<td>Lipo-MERIT</td>
<td>Melanoma</td>
<td>Phase I</td>
<td>Recruiting</td>
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<tr>
<td></td>
<td>HARE-40*</td>
<td>Head and Neck Cancer</td>
<td>Phase I/II</td>
<td>Recruiting</td>
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<tr>
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<td>IRIS</td>
<td>Breast Cancer</td>
<td>Phase I</td>
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## BioNTech Cell & Gene Therapies

<table>
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<tr>
<th>Cell &amp; Gene</th>
<th>Studies</th>
<th>Indication</th>
<th>Phase</th>
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<td>Ovarian Cancer</td>
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## BioNTech Protein Therapeutics

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<th>Antibodies</th>
<th>Studies</th>
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<td>IAPACA*</td>
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## BioNTech Small Molecules

<table>
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<tr>
<th>Small Molecules</th>
<th>Studies</th>
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<th>Status</th>
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<td>Solid Tumors</td>
<td>Phase I</td>
<td>Not yet recruiting</td>
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</tbody>
</table>

*Studies performed in collaboration with academic partners within the frame of the EU consortium immunostimulatory Agonist Antibodies for Cancer Therapy (IACT)*
BioNTech is the largest private biopharmaceutical company in Europe. The Company was founded to address major challenges in the cancer space: the need for effective, truly individualized treatments and the willingness to provide life-long, comprehensive support to patients. In short, BioNTech’s mission is to transform cancer into a manageable, non-lethal disease.

The clinical-stage Company is fully integrated and combines all building blocks of immunotherapy under one roof to bring highly potent, tailor-made and individualized cancer therapies to market. Over the next decade, it is anticipated that the treatment paradigm will evolve so that each patient receives customized treatment manufactured just in time. Through its diversified technology platforms, in-house diagnostics and manufacturing units, BioNTech is well-positioned to advance its mission.

**COMPANY OVERVIEW**

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**Quick Facts**

- **Employees:** 650 Employees (as of October 2017)
- **Corporate Headquarters:** An der Goldgrube 12, 55131 Mainz, Germany
- **Management Team:**
  - Prof. Dr. Ugur Sahin, Co-Founder & CEO
  - Sean Marett, COO
  - Dr. Sierk Poetting, CFO
- **Key Investors:**
  - Strüngmann Family Office
  - Mig Fonds
  - salvia gmbh

**Key Collaborations**

- **Genentech**
  - 50:50 cost and profit share. Novel mRNA-based, individualized cancer vaccines IVAC® MUTANOME: $310m in upfront and near-term payments.

- **Sanofi**
  - Co-development, co-commercialization. mRNA cancer immunotherapies: $60m upfront and near-term milestones.

- **Gennab**
  - 50:50 cost and profit share. Bispecific antibodies: $15m in upfront and near-term payments.

- **Lilly**
  - Licensing agreements. Novel tumor targets and corresponding T cell receptors: $300m upfront, $30m equity investment in BioNTech Cell & Gene Therapies GmbH.

- **Bayer**
  - Co-development, co-commercialization. Specifically for animal health applications.

**Platforms**

- **mRNA Technology**
  - Pharmacologically optimized protein coding RNA for targeted in vivo delivery
  - Cancer immunotherapies
  - Prophylactic vaccines
  - Protein replacement

- **Cell & Gene Therapy**
  - Immunotherapy with genetically engineered T cells, adoptive T cell transfer
  - T cell receptor therapies
  - CAR therapies

- **Protein Therapeutics**
  - Engineered nanoparticles for cancer immunotherapy
  - Bispecific antibodies
  - Microbodies
  - Virus-like particles

- **Small Molecules**
  - Small molecule drug discovery
  - TLR-agonists
  - Immuno-modulating small molecules
  - Drug discovery services

**INDIVIDUALIZED mRNA IMMUNOLOGY CONCEPTS – BIONTECH’S IVAC® PLATFORM**

BioNTech’s initial product-to-market offerings of individualized cancer treatments are developed using the Company’s mRNA technology platform. The IVAC® (Individualized Vaccines Against Cancer) platform enables the design of immunotherapies targeting cancer mutations and therefore has the potential to be universally applicable across cancer types. BioNTech has developed three different concepts with increasing degrees of individualization which allow efficiency in designing custom-made therapeutic vaccines for every single patient, tailored to his or her needs as well as tumor characteristics.

**BIONTECH IS THE FIRST COMPANY WORLDWIDE:**

1. **to undertake clinical trials with**
   - an mRNA-based individualized cancer vaccine targeting neo-antigens
   - an intravenous formulation of an mRNA vaccine
   - an mRNA-based individualized vaccine drawn from a warehouse of mRNAs encoding cancer-selective antigens

2. **to implement a medical genomics-driven and GMP-approved manufacturing process for individual patient-specific therapies**