

## Biotechnology and Molecular Diagnostics

Tentative title: "Molecular Diagnostics in the era of omics"

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Conventional methods to identify pathogens and diseases have often been relied in the identification of symptoms, isolation and culturing of environmental organisms, and laboratory identification by morphology and biochemical tests. Although these methods are still fundamental there is an increasing move towards molecular diagnostics. Molecular diagnostic tests analyze genetic content for disease information. These tests can sequence specific regions of DNA to identify genetic mutations or quantify the levels of certain genetic materials which may be expressed by a bacterium, virus or cancer. The examined DNA sequence may consist of an inherited or random mutation which may affect the probability of developing a disease or the ability to respond to a particular treatment. In the same way, molecular diagnostics can identify specific strains of an infection, such as H1N1 virus.

Some of the approaches that molecular diagnostics currently use are: (i) the polymerase chain reaction (PCR), (ii) real-time PCR, (iii) DNA microarrays and (iv) genomics. The PCR-based methods are being used extensively for the detection, identification and quantification of pathogens including real-time PCR which has been successfully implemented to provide rapid, quantitative data on pathogen species from environmental samples. DNA microarrays enable us to identify novel microbiome profiles of disease, treatment response and/or environmental changes.

Finally, with genomics it can be determined how the genes of an organism are interacting in a cell. This approach focuses on gene activity patterns, and molecular diagnostics uncovers these sets of changes and captures this information as expression patterns. Also called "molecular signatures," these expression patterns are improving the ability to diagnose disease.

<b>Termin</b>	<b>Dzień tygodnia</b>	<b>Godzina</b>	<b>Miejsce</b>
<b>13.05.2013</b>	<b>Poniedziałek</b>	<b>9.15 – 12.00</b>	<b>Minicentrum Konferencyjne (Luwr)</b>
<b>14.05.2013</b>	<b>Wtorek</b>	<b>9.15 – 12.00</b>	<b>Minicentrum Konferencyjne (Luwr)</b>
<b>15.05.2013</b>	<b>Środa</b>	<b>9.15 – 12.00</b>	<b>Minicentrum Konferencyjne (Luwr)</b>
<b>16.05.2013</b>	<b>Czwartek</b>	<b>9.15 – 12.00</b>	<b>Minicentrum Konferencyjne (Luwr)</b>
<b>17.05.2013</b>	<b>Piątek</b>	<b>9.15 – 12.00</b>	<b>Minicentrum Konferencyjne (Luwr)</b>