Synbio Dictionary

A translation tool for scientists and non scientists

1	µl	A unit for a volume
2	2D-Gelelectrophoresis	A method for visualising molecules. Seperates molecules electoporetic according to their size
3	3'	The DNA end with the terminal hydroxy group
4	3' non-coding region	The region bevor the 3' end is not translated into a RNA and thus into a protein
5	3'-end	The DNA end with the terminal hydroxy group
6	5'	The DNA end with the terminal phosphate group
7	5' non-coding region	The region bevor the 3' end is not translated into a RNA and thus into a protein
8	5'-end	The DNA end with the terminal phosphate group
9	Absorbance	How much (e.g. light) a material can absorb
10	Acid	Any chemical compound that, when mixed with water, has a pH value less than 7.0
11	acidic	A solution that has a pH value less than 7.0
12	Adenosine	The nuclein base adenin together with a ribose sugar molecule forms an adenosine
13	Affinity	the binding strenght of one substance to the other
14	Agar plate	A petri dish which contains a gel like substance. Bacteria love to grow on the gel and to use its
15	Agar-agar	A chemical powder that is used for the production of agar plates
16	Agarosegel	A gel that is needed for 2D-Gelelectrophoresis.
17	Alanin	One of the 23 proteinogenic amino acids
18	Alignment	Arrangement of sequences according to its similarities
19	Aliquot	subsample of the whole probe. From one probe many aliquots were made to always have a backup when contamining one aliquot.
20	Alpha helix	A motif in the secondary structure of proteins. Has a spiral conformation called helix.
21	Alternative splicing	A process in which several mRNAs were made out of one DNA-sequence
22	Amino acid	Key elements of proteins
23	Ampicillin	A antibiotic
24	Amplification	duplication process of sequences
25	Analytic scale	A device to determine very very low weights
26	Ångström	A unit of length
27	Annealing	The binding of a primer to the DNA
28	Antibiotic	A chemical substance that deadan or constrain bacterias in growing
29	Antibody	Proteins that indentifies specific antigenes to help the immuno system to get rid of the antigenes
30	Antibody mimetic	Antibody like proteins that can bind antigenes
31	Apatamere	Oligonucleotid or peptide molecules that can bind a specific target molecule
32	Apoptosis	Describes the self destruction of a cell
33	Archaea	A classification for single-celled microorganisms from the class of prokaryotes.
34	Arginine	One of the 23 proteinogenic amino acids
35	Asparagine	One of the 23 proteinogenic amino acids
36	Aspartic acid	see Asparagine
37	Assay	A process for the detection of substances
38	Atom	The bricks of all elements
39	Autoclave	A pressure chamber that is used for sterilization of materials
40	Auxotrophy	When an organism can't produce a essential substance on its own and needs to absorb it its calles auxotroph
41	Avidity	functional affinity
42	B2H	Abbreviation for bacterial two hybrid
43	BAC	Abbreviation for bacterial artificial chromosome
44	Bacillus subtilus	A Gram-positive bacterium. Lives in the soil and the gastrointestinal tract of humans
45	Backbone	The backbone of a DNA consist of phosporic acid- and desoxyribose-units
46	Bacteria	A class of prokaryotic microorganisms
47	Bacterial lawn	Bacterial colonies that form a mat of bacteria on a surface
48	Bacterial two-hybrid	An in vivo method for the detection of protein-protein interactions
49	Bactericide	A substance that kills bacteria like disinfectans or antibiotics
50	Bacteriostatic	stops bacteria from reproducing. Might even kill them
51	Band(Gel elec)	When separating DNA fragments for different sizes by gel electrophoresis. They form bar shaped bands in the agarose gele.
52	Base	The for different bits the DNA is made of are called "Bases"
53	Base pair	For every base their is a fitting partner. Together they form base pairs.

54	Batch cultivation	A batch cultivation takes place when a nutrient liquid is supplemented with a certain amount of bacteria and the pot is only opened when the process is aborted.
55	Beta lactamase	A certain protein that is capable of destruction of certain antibiotics.
56	beta sheet	A secondary structure in proteins where the single modules are arranged to form sheet like
57	BFP	A certain protein that is capable of glowing in a blue tint.
58	Binding protein	Some proteins are able to bind to certain targets. They are called binding proteins.
59	Biobrick	Biobricks are small parts of DNA that have special ends to make it biologists easy to combine and connect them
60	Biobrick prefix	In front of every Biobrick is a certain sequence that can be cut with certain proteins
61	Biobrick suffix	Behind every Biobrick is a certain sequence that can be cut with certain proteins
62	Biochemistry	The science of chemistry in the world of biology. Metabolism and construction of new molecules in our body belongs to this discipline.
63	Biofilm	Some bacteria tend to grow on surfaces. When they accumulate they build a kind of film of living cells. A biofilm.
64	Bioinformatics	The science of analyzing biological structures using computational tools. Especially important when analyzing DNA sequences
65	Biology	The science of all living things. Including bacteria, mammals, plants, and every other organism.
66	Bioluminescence	Some animals are able to glow to attract prey or communicate. This phenomenon is called bioluminescence
67	Biosafety	When working with genetically modified organisms it is especially important to work responsibly. That is why every lab has a concept of biosafety.
68	Biosensor	Proteins and DNA can be used to detect special chemicals or other things in their environment. These constructs are called biosensors.
69	Biotechnology	The discipline of connecting biology and engineering to construct and produce various substances in a biological way.
70	BLAST	A special kind of database query based on a protein or DNA sequence. With this tool you can find out where an unknown sequence comes from.
71	Blue white complementation	A special construct used while cloning to determine whether a bacterium carries the intended gene or not.
72	Blunt end	When both of the DNA strands end in the same spot the end is called "blunt end"
73	Bottom up	A scientific principle where a scientist starts at the smallest part of a system and starts to plan and construct everything on top of that.
74	Bt toxins	Toxic substances produced by a certain bacterium often used in plant modification instead of
75	Buffer	A liquid which influences a mixture to react less strong on addition of acids or bases
76	CAS9	A special protein which is able to cut DNA at a specified spot.
77	CDR	CDRs are certain areas on the tip of antibody arms. They show high variability and are directly responsible for their binding properties.
78	CDS	The certain region in a DNA sequence responsible for the assembly of amino acids. CDS stands for coding sequence.
79	Cell	The smallest compartement of life. Every living thing consists of cells.
80	Cell Culture	A controlled growth of cells is called a cell culture.
81	Cell wall	The outer border of plant cells is really strong and therefore called the "cell wall"
82	Centrifuge	A device to spin things really really fast to separate them through centrifugal force.
83	Centromere	The very middle of X-shaped chromosomes.
84	CFP	A certain protein that glows in a light blue shade.
85	Chassis	The organism which is used to test, assemble or replicate genetically engineered constructs is called the "chassis".
86	Chemical transformation	A lab method to bring DNA pieces into bacterial cells by using a heat shock.
87	Chemotaxis	The abbility of some cells to move in the direction of certain chemicals.
88	Chloramphenicol	A substance that kills bacteria
89	Chromatide	One of the arms of an X-shaped Chromosome.
90	Chromatine	The substance containing isolated chromosomes when extracting DNA from mammal cells.
91	Chromatography	A method used to purify or analyze mixtures of different substances.
92	Cleanbench	A device in the laboratory with almost no germs present. This enables us to work in a very defined environment.
93	Clone	Several bacteria containing the same DNA sequence are called clones
94	Cloning	The process of building and integrating new DNA sequences.
95	Closed circle	A certain form of plasmids. In this state both strands of the plasmid are closed and no end is
96	Coat protein	A protein which sticks to a certain material to prevent other proteins to bind.
97	Coding strand	The strand of the DNA which carries the sequence which is used to build the mRNA
98	Codon	A pack of three bases encoding one amino acid is called a "codon"
99	Codon usage	Every organism has its own distribution of these codons in the whole system. The usage of a codon, given in percent of all potentially possible codons, is called the "codon usage".
100	Colony	When putting bacteria on a nutrient jelly they start to form small dots after a day or two. These dots consisting of pure bacteria are called colonies.

101	Colony PCR	A very rough analytical method to screen bacteria for favourable DNA-constructs. The input for this application are bacterial cells.
102	Competent cells	Cells that are capable of incorporating external DNA via transformation.
103	Complementarity	This discribe the relationship between two structures. It like lock-and-key principle.
104	Concentration	Is the amount of a constituent divided by the total volumen.
105	Conjugation	This is a substitution of genetic information between two cells.
106	Constitutive	As example a constitutive promotor has no regulation for transcription and is constant.
107	Contamination	This means that something unwanted growth.
108	Contig	This is the short form of contiguous. This represent a set of overlapping DNA segments.
109	Continuous fermentation	Is a form of cultivation, but the cells get every time enough nutrients.
110	Cosmid	Is hybrid plasmid that contains Lambda phage cos sequence
111	Covalent	This means the electrostatic appetence of two atoms.
112	Cre-sites	Is a point of intersection that will be cut by the enzym cre.
113	CRISPR	Stands for Clustered Regularly Interspaced Short Palindromic Repeats. This are segments of prokaryotic DNA that contain short repetitions of base sequences.
114	CRISPR CAS	This complex is a prokaryotic immune system that confers resistance against foreign genetic
115	Crystal structure	This is a description of the arrangement of atoms, ions or molecules in a crystalline material.
116	C-terminus	This is the end of a amino acid chain, protein or polypeptide and it terminated with -COOH.
117	Cultivation	Put some cells in a medium and le it grow.
118	Cutoff	Is a minimum or maximum value for decision which values are useful.
119	Cuvette	This is a small container, which is used for hold samples for spectroscopic experiments.
120	Cycler	This is a laboratory apparatus, which is commen used for PCR. It can regulat the temprature.
121	Cysteine	This is an amino acid, that is used for generation of proteins.
122	Dalton	Is the unit that is used for indicating mass on an atomic or molecular scale.
123	dATPs	Is a brick for genrate DNA with Adenine.
124	dCAS9	Is a complex that bind at the DNA.
125	dCTPs	Is a brick for genrate DNA with Cytosine.
126	Degradation	This means the seperation of chemical compound into smaller elements.
127	Deletion	This is a genetic mutation, where a part of the DNA disappeared
128	Desinfection	This is a destruction of pathogenic microorganisms in any substance.
129	Destilled	This means that it was obtained or produced by distillation.
130	dGTPs	Is a brick for genrate DNA with Guanine.
131	Digestion	This means that mocelules will be broken.
132	Dilution	Reduce the concentration of a substance.
133	Directed evolution	Is a methode for protein engineering with use of mutation ans selection.
134	Disulfide bond	This is a chemical linkage between two sulfide moleculs.
135	DNA	DNA stands for Deoxyribonucleic acid. This molecule carries the genetic informations.
136	dNTPs	This are all brick for generate DNA.
137	Domain	This is a part of a protein.
138	Dominant	This means that something can be established.
139	Double strand	This are two parallel strands that are conected.
140	Doubling rate	Stands for the time periode which
141	Downstream processing	This means the recovery and purification of biosynthetic products.
142	Dry ice	It is a carbon dioxide, which doesn't melt into wet liquid.
143	dTTPs	Is a brick for genrate DNA with Thymine
144	Electroporation	This is a technique which allowed us to bring something (for example DNA) in a cell with use of electricity.
145	Elongation	This is one of three phase of the transcription and translation.
146	Elution	This is a process to seperate one material from another by washing.
147	Emission	The light that goes back.
148	Endonuclease	Is a enzym that cuts DNA.
149	Enzyme	Is a biocatalyst
150	Enzyme assay	Is a method to measure the enzym activity.
151	Escherichia coli	Is a bacterium, which also lives in our body.
152	Ethanol	Is the chemical name for alcohol.
153	Ethidium bromide	used as a fluoreszent tag. It shines brightly when it binded to DNA and is exposed to UV-light
154	Eucariotics	Group of organisms whose cells nucleus has a membrane. For example animals, plants and fungi
155	Euchromatin	lightly packed chromatin. that means it consists of DNA, RNA and protein. It is the largest proportion of the nucleus
156	Evobody	Combination of Evolution and antibody.
157	Evolution	Process of selection of organisms in which favourable new traits lead survival
158	Excitation	the process to elevate an atom to a higher energy level. Used in photometrics.
159	Exonuclease	enzyme that cuts of nucleotides from the end of a polynucleotide chain
160	Export signal	small amino acid sequence marking a protein for export from the cell nucleus
161	Expression	summary of the processes transcription and translation
162	Extension	elongation of an DNA sequence

163	F plasmid	allows genes to be transferred between bacteria
164	FAC	fluorescent activated cell counter
165	FACS	fluorescent activated cell sorter
166	Falcon tube	plastic tube with 15ml or 50ml volume. Fits in certain centrifuges
167	Fed batch	method of cultivation of bacteria. Supplements are addet to the culture during fermentation
168	Fermentation	process of production in cell culture
169	Fermenter	simply: large metall keg that can be sterilized. Used for fermentation
170	Fitness	individual ability to propagate ist genes
171	Flagellin	protein that makes up the flagellum
172	Flagellum	tail of certain bacteria. Used for movement
173	Flavivirus	type of viruses that are mainly transferred by mosquitos
174	Flow-through	soltution that passed the membrane in purification processes
175	Fluorescence	emission of light by a substance
176	Fluorescent protein	protein that glows when excited
177	Formamide gel electrophores	gel electrophoresis with formamide which stabilizes RNA by deionizing it
178	Forward	direction from 3´ ending to 5´ending of a sequence
179	Fragment	small piece of DNA
180	Frameshift	change in a amino acid sequence by deleting or inserting single amino acids
181	Fungus	domain of living including champingions, shiitake etc.
182	Fusion	combining two elements into one
183	Fusionprotein	result of combinin two protein structures into one
184	Gel electrophoresis	method to seperate macromolecules like DNA, RNA and proteins based on size and charge
185	Gel extraction	after running a gel you cut out the fragment of interest and use a extraction kit to purify the DNA
186	Gene	Is a region of DNA that encodes a function or protein
187	Gene of interest	Gene that is targeted
188	Gene synthesis	artifical creation of a amino acid chain
189	Gene therapy	therapeutic delivery of nucleic acid chains into a patients cells as a drug
190	Genetic drift	change in the frequency of a gene variant
191	Genetic engineering	artifical creation of genes and plasmids
192	Genetic Library	collection of slightly different DNA sequences
193	Genome	genetic material of an organism
194	Genomics	discipline in genetics to sequence, assemble and analyze the structure and function of genomes
195	Genotype	specific individual set of genes of an organism
196	Gentamycin	antibiotic that interupts gene synthesis in bacteria
197	Germ	informal for pathogen
198	GFP	protein with bright green fluorescence when exposed to UV light. Originates from a deep sea
199	Gibson assembly	molecular cloning method to join multiple DNA fragments in one isothermal reaction
200	Global alignment	A certain algorithm to compare a relatively short DNA sequence with a much longer one.
201	Glutamic acid	GAA: amino acid used in biosynthesis of proteins. synthesised by the bod. Used in food as a flavor enhancer
202	Glutamine	CAA: amino acid used in biosynthesis of proteins. synthesised by the body
203	Glycerol	viscous liquid used for stocks and also as a sweetener
204	Glycerine culture	stock culture for later use. cells are stored in 10% glycerine at -80°C
205	Glycine	the smallest amino acid
206	Glycosylation	chemical reaction. a carbonhydrate is attached to another molecule
207	GMO	genetically modiefied organism. an organism with any genetic changes to it
208	Golden gate	A certain way to connect two parts of DNA.
209	Growth rate	describes the speed of cell division
210	Guanine	one of the four nucleobases that make up the genetic code (DNA and RNA), it is paired with
211	Guide RNA	guides in RNA editing. insertion and deletion of uridine residues
212	Hairpin	loop in single strand DNA/RNA caused by base pairing
213	Helicase	enzyme. unpacks an organisms genes by splitting the doubble strand DNA/RNA forming a bubble other enzymes use
214	Helix	term for a spiral like a spring. double helix is the structure of the DNA
215	Heterochromatin	tightly packed DNA next to the inner membrane in the nucleus
216	Heterocygotic	mixed inherited alleles of one gene.
217	High fidelity	meaning an accurate replication by a polymerase or near complete digest by endonucleases
218	High throughput screening	faster anaysis of cells by automatisation
219	His-Tag	polyhistidine tag. six histidine residues are linked to a protein. used for protein purification
220	Histidine	CAU/ CAC: alpha amino acid used in biosynthesis of proteins
221	Histone	alkaline proteins that package and order DNA into nucleosomes. spools around which the DNA
222	Homocygotic	same inherited alleles of one gene.
223	Homologous recombination	exchange of nucleotide sequences between two similar or identical DNA molecules
224	Homology	charastic of organisms that is derived from a common ancestor
225	Host	organisms that harbours another organism in or on itself. may be benefical or deadly
226	iGEM	international genetically engineered machine. world wide competition in synthetic biology

227	in planta	in plants
228	in silico	on a computer. simulated
229	in situ	locally. on site
230	in vitro	in microorganisms, cells or biological molecules
231	in vivo	in whole living organisms
232	Inactivation	made dormant or no longer functional
233	Incubator	device for controlled growth by regulating temperature, humidity and CO2 level
234	Indel	insertion or deletion of bases (or both) in the DNA. germline: resulti is the change of the total number of nucleotides
235	Inducer	molecule regulating gene expression. activates the transcription of a gene
236	Induction	activation of some sort. commonly by adding a supplement
237	Initiation	beginning of a state or action
238	Inoculate	artifical induction of immunity. adding cells to medium for growth
239	Insert	piece of DNA that is inserted into a larger DNA vector
240	Insertion	process of adding a piece of DNA into a vector. commonly by ligation, recombination or Gibson assembly. addition of a nucleotide to a DNA sequence
241	Inversion	reversion of a segment in a chromosome from end to end
242	iRNA	interfering RNA. stops or lowers expression of genes with a complementary nucleotide sequence by degradation
243	Isolation	extraction of one organism from a pool of organisms e.g. a cultivation
244	Isoleucine	ATT,ATC or ATA: alpha amino acid, essential for humans
245	Kanamycin	antibiotic. causes high amounts of mistranslation and inhibitsprotein synthesis
246	kb	kilo base pairs (1000 base pairs)
247	kDa	kilo dalton. indicates the mass of an molecule
248	Klenow polymerase	polymerase without 5´-->3´exonuclease activity
249	Lab coat	long coat made from cotton. used for protection in the lab
250	Lab smock	A slightly shorter version of the lab coat. It provides more freedom of movement.
251	Laboratory	a specially build and equipped room for specific tasks. workig with organisms, chemicals or radioactivity to make sure no one is endangered
252	Ladder	used in gels for comparison. is a mix of standardized fragments with specific length. for determination of sample lenght
253	Lagging strand	strand which direction of synthesis is opposite to the direction of transcription
254	LB	lysogeny broth is the most basic growth medium. almost all microorganisms grow in it
255	Leading strand	strand which direction of synthesis is the same as the direction of transcription
256	Leucine	UUA,UUG,CUU,CUC,CUA,CUG. alpha amino acid. essential to humans
257	Ligation	connecting two pieces of DNA or RNA by DNA/RNA ligase
258	Linker	short segment of DNA with many restriction sites. used for connecting protein or DNA
259	Liquid nitrogen	nitrogen that became a liquid at very low temperatures: -195°C used in glycerine cultures
260	Loading dye	added to DNA or RNA before gel electrophoresis. used to track the process because DNA/RNA itself is colorless
261	Local alignment	comparison of several small portions of two DNA sequences to look for similarities
262	Loop	same as hairpin
263	Low fidelity	meaning an inaccurate replication by a polymerase or incomplete digest by endonucleases
264	loxP	part of the Cre/loxP-System. originates in the P1 bakteriophage. 34 bp. marks the plart of DNA where the Cre enzyme cuts
265	Luciferase	class of oxidative enzymes that produce bioluminescence. from lucifer which means light bearer
266	Luciferine	light emitting compound in organisms that generate bioluminescence
267	Lysine	AAA,AAG: alpha amino acid, base, essential to humans
268	Lysis	the breaking down the membrane of a cell by viral,enzymic or osmotic mechanisms
269	Mapping	method to identify the exact location of a gene on the chromosome and the distance between
270	Mass spectrometry	analytic technique. it measures the masses in a sample to determine its contents
271	Mastermix	reaction mix for several samples. is first divided into portions then sample is added to each
272	MATLAB	programming language and programm for data evaluation
273	Matrix	material between cells. can hold specialized structures
274	mature mRNA	mature messenger RNA. transfers information from the DNA to the ribosome. already processed after transcription
275	Medium	solution of nutriens in which organisms are grown
276	Meiosis	cell division that reduces the chromosome number by half
277	Membrane	outer layer of the cell. works as an protective barrier
278	Metabolic burden	When building a lot of proteins the cell can become very exhausted thus the growing is weakened. This is called the metabolic burden.
279	Metabolism	most basic procesess and reactions within a cell necessary for live sustain
280	Metabolome	the entirety of small molecule chemicals in a cell
281	Metabolomics	the scientific study of chemical processes of metabolites
282	Methionine	essential amino acid. important in the growth of new blood vessels
283	Microbiology	the study of microscopic, meaning very small organisms that can hardly or not be seen by the

284	Microfiltration	filtration through a filter with pores of 0.1 to 10um
285	microRNA	small RNA of 22 nucleotides. regulates gene expressoion and silences RNA
286	Microscope	tool used to see small things like microorganisms
287	Microwellplate	small plate with several (2,6 up to 96 and even more) wells for cultivation on a small scale or antibody assays
288	Mitochondrium	power plant of the cell. produces energy in the form of ATP
289	Model organism	organism that is used as an ideal example for specific biological phenomenons as it is very well
290	Modeling	the mathematic approach to predict certain results in advance
291	Molecular biology	field that researches on the activity of biomolecules in a cell
292	Molecular recognition	specific interaction between molecules through noncovalent bonding
293	Molecule	a electrically neutral group of two or more atoms held together by chemical bonds
294	Monobody	synthetic binding protein with a fibronectin type 3 domain as a scaffold
295	Monomer	molecule that binds to other molecules to form a polymer
296	mRNA	messenger RNA. conveys genetic information from DNA to the ribosome
297	Multiple cloning site	short DNA segment that contains many restriction sites
298	Multipotent	feature of cells that can differentiate into multiple cell types
299	Murein	polymer of sugars and amino acids that form a mesh structure, the cell wall
300	Mutagenesis	process by which the genetic code of an organism is changed
301	Mutation	a change in the genetic information
302	Myc-Tag	Amino acid sequence often added to proteins to identify/isolate them due to known antibodies binding to the Myc-tag.
303	Mytosis	Process of cell duplication.
304	Nanobody	Small binding protein.
305	Native PAGE	PAGE where no denaturation or masking of the charge of proteins occurs.
306	Necrosis	Premature death of a cell; often implies damaging of membrane and release of inner cell components into surrounding medium.
307	Negative control	A test ensuring that experiment results are no false-positives.
308	Negative strand	The strand in double stranded DNA that is not the template strand.
309	Next generation sequencing	The aquirement of a DNA sequence with modern methods.
310	Nitrocefin	Substance which a change of color from yellow to red if processed by beta-lactamase.
311	NLS	Short for nuclear localization signal: A tag that enables the translocation into the nucleus.
312	Northern blot	Method to identify specific RNA.
313	N-terminus	End of an amino acid with the charateristic amino group.
314	Nuclease	Protein that partly or completely degrades DNA.
315	Nucleic acid	Biopolymer including DNA and RNA.
316	Nucleoside	Molecules consisting of a nucleobase and a 5-carbon sugar.
317	Nucleotide	Molecul that is the basic unit of DNA and RNA. Nucleoside with a phosphate group.
318	Okazaki fragment	DNA fragments formed during replication of DNA on the lagging template strand that are subsequently ligased.
319	Oligo synthesis	Chemical construction of short nuleic acid fragments based on a given sequence.
320	Oligonucleotide	Short nucleic acid molecule.
321	Open circle	Circular DNA with a nick.
322	Optical density	Measurement of absorbed light passing through a cuvette containing solution with bacteria. The absorbance provides information about the growth.
323	Organism	A living system consisting of one ore more cells.
324	Origin of replication	Particular DNA sequence that marks the initial point of replication.
325	Overlap	DNA fragments sharing a partial sequence of bases.
326	PAGE	Polyacrylamide gel electrophoresis. A technique used to seperate and identify nucleic acids or proteins acording to their electrophoretic mobilitiy.
327	Palindrome	Nucleic acid sequence that has identical sense independant of the reading direction. E.g. ATTATTA
328	Pathogene	Microorganims or parasidal molecules that are potentially able to damage their host organism.
329	PCN	Plasmid copy number
330	PCR	Polymerase chain reaction (PCR) is used to amplify DNA across several orders of magnitude.
331	PCR Tube	Special vessel for the Polymerase chain reaction (PCR) to take place in.
332	Peleus ball	A rubber bulb placed on pipettes. Source of vacuum for the pipette to suck in liquids.
333	Peptide	A short sequence (50 or less) of amino acids linked by peptide bonds.
334	Peptidoglycane	Synonymous to murein. A polymer of sugars and amino acids in a mesh-like layer outside the plasma membrane of most bacteria.
335	Peroxisome	Enzyme that reduces reactive oxygen species.
336	Petri dish	A plate on which microorganism are cultivated.
337	pH meter	Device used to measure the pH-level of a solution.
338	pH value	A value giving information about a substance being alkaline, neutral or acidic.
339	Phage	Also called bacteriophage. A Virus using bacteria as host organism.
340	Phage display	Technique to research protein-protein or protein-DNA interaction based on gene insertion into the phage coat gene.
341	Phagemid	Plasmid with origin of replication from f1 phage.

342	Phenotype	The observable apperance of an organism based on expressed genes and environmental influence.
343	Phenylalanine	The amino acid alanine with a benzyl-group instead of the methyl-group.
344	Photometer	Device used to measure light intensity of a probe.
345	Picking (colonies)	The process of taking samples of single bacterial colonies e.g. for a colony PCR.
346	Pipette	Tool used to tranfer small volumina of a liquid.
347	Plasmid	Circular DNA with independent replication from the chromosomal DNA.
348	Plasmid isolation	Process of extraction and separation of plasmids from other cellular components like chromosomal DNA.
349	Pluripotent	Unspecialized cell that can become any spefcif celltype of the organism but can not from a new organism by itself.
350	polyA tail	A stretch of RNA that has only adenine bases. Added to mRNA and part of the process leading to mature mRNA.
351	Polymer	large molecule made up of several repeated subunits
352	Polymerase	enzyme that copys the DNA or RNA
353	Polypeptide	long continuous and unbranched peptide chain
354	Positive control	conrol that gives the expected result 100%. used for comparison
355	Positive strand	largest group of RNA viruses with 30 families
356	Pribnow box	is the sequence TATAAT. essential part of the promotor site on DNA for transcription in bacteria
357	Primary structure	the linear sequence of amino acids
358	Primer	short strand of DNA/RNA that serves as the staring point of DNA synthesis. binds to a single strand and guides the polymerase there
359	Procariotics	field of single celled organisms
360	Product	result of a manufacturing process
361	Programming	writing a program on the computer
362	Proline	CCU,CCC,CCA,CCG. alüha amino acid. non essential
363	Promoter	DNA region that is a control point for regulated gene transcription
364	Protease	enzyme that links together amino acids
365	Protein	large biomolecules consisting of one or more amino acid chains
366	Proteome	entire set of proteins in a cell
367	Proteomics	study of proteins in a organism
368	Purification	the process of only leaving/ extraction the target
369	Purines	Adenine and Guanine. organic compound
370	Pyrimidines	Cytosin, thymine, uracil
371	qPCR	real time polymerase chain reaction. monitors the amplification of DNA during the process. quantitative output during the process
372	Quarternary structure	arrangement of several folded protein structures
373	Quorum sensing	system of stimulus and reaction by bacteria to coordinate gene expression. knowing who is next to
374	RBS	ribosomal binding site. recruits the ribosome
375	RCF	relative centrifugal force. acceleration in a centrifuge normalized to earths gravity
376	Reaction tube	small plastic tube for mixing and reactions
377	Read	result from sequencing
378	Recessive	feature of a gene. if two come together it is expressed. is weaker than a dominant allele
379	Recognition sequence	palindrome(repeating sequence) binding site
380	Recombinant	organism: contains different combination of alleles, DNA: artifical DNA sequence
381	Recombination	process of breaking and joining different genetic material
382	Regeneration	used after transformation to revitalize the cells after the stress
383	Repeat	part of a sequence that is repeated
384	Repeated batch	form of cultivation. taking bacteria to cultivate through all phases then take a sample and start
385	Replication	process of copying DNA
386	Reporter	gene that is attached to a regulatory sequence to control its expression
387	Repressor	DNA/RNA binding protein that inhibits expression
388	Resistance	ability of a organism to withstand things like antibiotics
389	Restriction	enzyme that cuts DNA at a specific place
390	Restriction site	part in a sequenze where a enzyme specifically cuts
391	Reverse	the complementary to a DNA single strand
392	Reverse complement	one part of a lock and key like complex
393	RFP	red fluoreszent protein. protein that glows red under uv
394	Rho protein	transcriptional termination factor. destabilizes binding of the polymerase
395	Ribosome	links amino acids together after the codon schemata
396	Risk groups	classifications of organisms by threat potential to humans. S1-4
397	RNA	ribonucleic acid. molecule simmilar to DNA but less stable and only used for command transmition in the cell
398	RPM	rounds per minute. unit of speed for centrifuges
399	rRNA	ribosomal ribonucleic acid. essential for protein synthesis
400	rtPCR	reverse transcription polymerase chain reaction. converts RNA to DNA

401	Rules of Chargeff	Chargaff is a guy who found out, that each two out of the four different bits the DNA is made of, are in the same amount in our cells. The ratio between these two pairs may vary in different
402	Safety glasses	#MUSS NICHT ERKLÄRT WERDEN
403	Sanger Sequencing	To determine the order of the four different bits in the DNA, only one strand is taken and the second is artificially build. But mostly only three of the four bits are supplied and the strand without a partner is removed. By comparing the size of the products for the different bits and varying the building time, the order of the bits can be determined.
404	Satellite colony	Sometimes next to big bacteria clumps on the jelly food there appear a lot smaller ones right next to the bigger ones.
405	Scaffold	#MUSS NICHT ERKLÄRT WERDEN
406	Scalpel	A very very sharp knife
407	SDS	A chemical that acts like soap. It is used to destroy cells or unfold proteins
408	SDS-PAGE	A special method to determine the size of molecules. Electricity is used to pull the molecules through a special gel.
409	Secondary structure	In the structure of proteins there are some certain patterns that appear very often. Some look like spirals or sheets. These modules are called secondary structure.
410	Sec-signal	A special sequence at the end of proteins which signals other proteins to transport them to the outside of the cell.
411	Selection	In nature or in the laboratory you look for certain abilities in animals or cells. Not every type is used for later processes. This method is called "Selection".
412	Selection marker	Sometimes very obvious parts are coupled with undetectable parts to make the differences you are looking for easy to detect. These easily detectable parts are called selection marker.
413	Selective pressure	When looking for a certain ability in cells or animals the environment may have conditions that are better for the growth of only a part of the different types. It applies "Selective pressure" to the
414	Septum	A thin flexible rubber sheet. Usually it's used at calderon bacterias grow in. A syringe is poked through the septum without bringing any other bacteria into the pot.
415	Sequencing	Determining the orde of the four different bits in the DNA. It is used to be sure if the bits are in the order they wanted to be arranged.
416	Serine	It is one of the 20 different modules proteins are made of.
417	Sex pilus	It is like a spear bacteria use to connect to other bacteria. If they dock with it the channel can be used to exchange DNA.
418	Shaker	Like a cupboard with a plate that moves in defined circles at a defined speed. The temperature inside of it is strictly controlled.
419	Shaker flask	A special pot made of glas or plastic which is used to grow bacteria under controlled conditions. The size may vary from 100-5000 ml
420	Shine Dalgarno sequence	A special sequence in RNA were the part that makes the proteins binds. It is around 8 positions in front of the protein coding part and appears only in bacteria.
421	Sigma factor	A special protein in Bacteria which initiates the building of certain proteins.
422	Silencing	The general term when a DNA piece is inhibited in building a protein.
423	Single molecule sequencing	A special sequencing technique where only one strand of DNA is used to determine the order of the DNA bits.
424	Single strand	The ladder shaped DNA may appear as complete ladder or only as one half of it. When appearing as half a ladder it is called single stranded
425	Single strand binding protein	These proteins bind to DNA shaped like half a ladder and inhibit the binding to a appropiate second
426	SNP	Single-nucleotide polymorphism this may appear at one certain spot in the DNA when one of the bits is exchanged in every possible way at a fair amount in the whole of DNAs analyzed.
427	SOC	Super Outgrowth broth with Catabolite repression is a special liquid food for bacteria which is used to provide them optimal conditions after stressful treatment.
428	Southern blot	A method to detect certain pieces of DNA. In a first step the DNA is separated after size (gel electrophoresis) in a second step it is transfered to a membrane and marked with an appropiate piece of DNA.
429	Splicing	In animals and plants the RNA is spliced before decoding for protein building. Certain parts of the RNA is removed and only the other parts are used to build proteins.
430	Splicosome	The complex of different proteins that do the splicing is called the spliceosome.
431	Split protein	Some proteins are able to be cut or build in two separated parts and are still able to keep their function when they meet. These complex is called a split protein.
432	Spore	Some fungi or bacteria like the bacillus are able to become small balls containing only the most important parts of their machinery. These small balls are extremely resistant against any influences and are called spores.
433	Sporulation	The process of the formation of a spore.
434	sRNA	Small RNA are RNA parts with the function to influence the RNA carrying the code for proteins e.g. they could bind and "silence" them
435	Staining	Colorful substances with certain properties are used to make certain structures more visible. Applying these chemicals is called staining.
436	Start Codon	The very first three bits of DNA in the protein encoding part on the DNA are almost always ATG. This element is called the start codon because it iniates the building of a protein.

437	Stem cell	A cell of an animal which is able to become a different kind of cell. It comes in the forms omnipotent, pluripotent and totipotent.
438	Sterile	Sterile things contain only a very very low amount of cells of any kind.
439	Sticky end	When the two strands of a piece of DNA don't end at the same spot this end is called a "sticky end" because it could bind to a different appriate strand of DNA.
440	Stop coden	In the protein coding part of a DNA piece there may appear a combination of three certain DNA bits that signal the protein builder the end of the protein. There are three different combinations giving this signal.
441	STR	Short tandem repeats are combinations of a few bits of DNA that are repeated 5-50 times in the DNA. They can be analyzed to know more about the connection of different species.
442	Strain	Bacteria is grouped in strains. Every bacteria of one strian contains the same genes in their biggest DNA piece.
443	Substrate	When a chemical is degraded or changed by something e.g. a bacterial cell, it takes the role of the substrate. Generally the substrate is altered to the product.
444	Super coil	When a molecule builds spirals within itself, it is able to build spirals with similar molecules. This structure is called "supercoiled" or "coiled coil".
445	Supernatant	When a liquid is spun so quickly the solid parts collect on the bottom, the purely liquid rest on top is called "supernatant".
446	Suspense	A mix of a liquid and solid parts is called a suspension. The act of mixing solid parts and the liquid is called suspense.
447	Synthesis	Whenever something is build it is synthesized. DNA can be synthesized as well as protein can be synthesized.
448	Synthetic biology	The discipline in biology where scientists try to build organisms not appearing in nature.
449	System	#WHAT WHAT???
450	Systems biology	Is a discipline of biology designated for finding mathematical models for biological processes.
451	Tag	A tag is a part of a protein that marks the protein for different kinds of applications.
452	Tandem repeats	Tandem repeats are repeating patterns on a DNA sequence. They are often used to determin parentage, as tandem repeats differ from organism to organism.
453	Tat-signal	The twin arginin translocation (TAT) signal is a part of a protein which enables a protein to be transported out of a cell.
454	Telomer	Telomers are repetitiv DNA sequences in the chromosoms, which save the cells DNA from being deconstructed. With each cell replication, more parts of the telomers are missing. When the telomers become to short, the cell stops replicating. Immortal cells, like cancer cells, replicate their telomers via a protein, the telomerase.
455	Telomerase	The telomerase repairs a cells telomers, preventing the cell's death. Immortal cells like stem cells, germ cells or cancer cells use the telomerase.
456	Template	Template is a term usually used for DNA or RNA samples
457	Termination	Termination describes the stopping of the transcription.
458	Terminator	Terminators are parts of a DNA or RNA sequence that stop the transcription.
459	Tertiary structure	The tertiary structure of a protein describes the 3d spatial structure of said protein
460	Tetracycline	Tetracycline is a substance (antibiotic) that inhibits the generation of proteins in bacteria
461	Threonine	Threonine is an essential amino acid.
462	Thymine	Thymine is one of the four bases DNA consists of.
463	Tissue penetration	The abbility of a protein or substance to go between cells.
464	Titration	Titration is a chemical method to determine the concentration of a solution.
465	Top down	Top-down is a method of analysis. It describes the process of starting at the biggest part (top) of a problem and going deeper into detail.
466	Topo cloning	A method to combine parts of DNA, where the end parts of the DNA are combined with specific enzymes
467	Topoisomerase	A special protein that can turn and switch DNA strands.
468	Transcription	Transcription is a process, in which DNA is copied to RNA. It's the first step for gene expression.
469	Transcriptome	The Transcriptom describes the total sum of transcribed RNA in a cell at a distinct point in time.
470	Transcriptomics	Transcriptomics are the studies of a cells transcriptome.
471	Transfection	Transfection describes the introduction of foreign DNA into an eucaryotic cell. (cf. tranformation in bacteria)
472	Transformation	Transformation describes the introduction of foreign DNA into an procaryotic cell. (cf. transfection in eucaryotic cells)
473	Transgenic	Transgenic organisms are organisms, whose genome has been modified via genetic engineering.
474	Translation	Translation describes the process, in which previously transcribed mRNA is translated to amino acid sequences by the cell's ribosome.
475	Triplet	A triplet of three bases in the DNA codes for one amino acid in the process of translation.
476	tRNA	The tRNA assists the ribosom in the translation by transmitting the amino acid.
477	Tryptophane	Tryptophane is an essential amino acid.
478	Turbidostat	A turbidostat is a kind of continuus bioreactor, that can hold the cell densitiy of a solution on a set level by diluting.
479	Tyrosine	Tyrosine is non-essential amino acid.

480	Ultracentifugation	Ultracentrifugation describes the process of high speed spinning.
481	unprocessed RNA	Unprocessed RNA is RNA, which is not matured and therefore not ready to use.
482	Upstream processing	Upstream processing describes all parts in a process that have to do with cell cultivation, starting from cell isolation over cultivation to havesting and banking the cells.
483	Uracil	Uracil is one of the four bases RNA consists of. It's DNA counterpart is Thymine.
484	UV	UV light is ultraviolet light, its high energetic.
485	Valine	Valine is an essential amino acid.
486	Vector	A vector a DNA sequence that is used to carry foreign DNA into a cell.
487	Virus	A virus is a particle that infects cells with its genome, forcing the cell to replicate the virus. As viruses are not able to replicate them self or convert energy, they are not considered living
488	Voltage encoder	A device to provide electric current. Often used to run gel electrophoresis
489	Vortex	A vortex is a device for rapid mixing. Its based on a shaking platform.
490	Washing	In molecular biology, washing usually referres to rinsing something with a medium different to the one previously used. Often used to get rid of salts and other ingredients.
491	Wavelength	Scientific, the wavelenght describes the lenght of electromagnetic oscillation. For example, light of different wavelenghts appears in different colors to the eye.
492	Western blot	A western blot is a method for the detection of proteins. The solution that should be tested is first seperated by weight via a kind of gel electrophoresis. After that, the gel is applied to a membran. The proteins can now be stained using specific antibodies.
493	Workbench	A workbench is a box used for sterile lab work. With special filters, the air inside can be kept microorganism-free, and through a method of airflow regulation, no air can either leave of enter the bench from the outside.
494	Y2H	The yeast two hybrid (Y2H) system is a methode used for the selection of yeast cells in a culture. Based on protein-protein interaction, the system only allows yeast cells with a binding between the two desired proteins to survive.
495	YAC	The yeast artificial chromosom (YAC) is a synthetic chromosome, thats based on a yeast chromosom. It can be used to transfer foreign DNA into a cell.
496	Yeast	Yeast is a fungal microorganism. Yeast is involved in a lot of common food related works, for example the brewing of beer or the baking of bread.
497	Yeast two-hybrid	c.f Y2H
498	YFP	The yellow fluorescent protein is a mutant from the green fluorescent protein. When induced with a specific kind of light, it emits yellow light.
499	Zika	Zika is a virus from the same kind as the dengue virus or the west-nile virus. It is transferred by mosquitos and can lead to an infection with the Zika fever. When pregnant, an infection by the Zika virus can lead to microzephaly, a malformation of the unborn childs head.