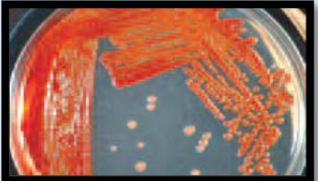
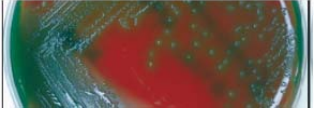


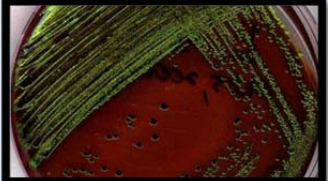
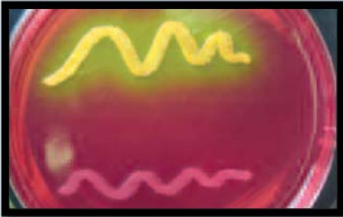

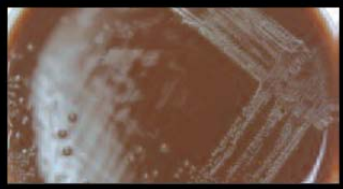
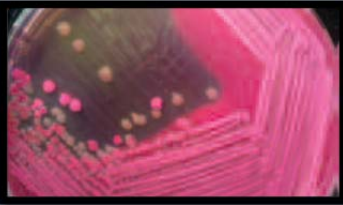


Name	Selective <i>contains an inhibitor to slow/inhibit the growth of undesired organisms</i>	Differential <i>differentiates closely related microbes based on their color, colony morphology; colonies are visually distinguished on the basis of some biochemical difference.</i>	Explanation and Examples
NUTRIENT AGAR (NA) 	No – it is an undefined (complex) medium in which at least one ingredient is of unknown identity or amount	No	<ul style="list-style-type: none"> enriched medium, contains numerous nutrients widely used general purpose medium for growing a wide variety of nonfastidious microorganisms typically contains: 0.5% Peptone, 0.3% beef extract/yeast extract, 1.5% agar, 0.5% NaCl, distilled H₂O, pH adjusted to 7.0 at 25 °C agar is a phycocolloid extracted from a group of red-purple marine alga agar is a gel at RT, remains firm at 65°C, melts at around 85°C, and solidifies at 32-40°C
BLOOD AGAR	No – it is an undefined (complex) medium; a general purpose enriched medium often used to grow fastidious microbes	Yes – used to differentiate bacteria based on their hemolytic properties:   	to read the hemolytic pattern, the plate must be held up to a light source and observed with transmitted light <ul style="list-style-type: none"> alpha (α) hemolytic bacteria; partial or incomplete hemolysis; agar greenish (or brownish) around bacterial colonies; reduction of hemoglobin to methemoglobin; on prolonged incubation, many alpha hemolytic bacteria will begin to appear clear Examples: <i>Streptococcus pneumonia</i> and oral streptococci beta (β) hemolytic bacteria; complete or true hemolysis; agar clear (or yellowish) around bacterial colonies; toxins destroy RBCs Examples: <i>Streptococcus pyogenes</i>; <i>Staphylococcus aureus</i>; <i>Pseudomonas aeruginosa</i>; <i>Listeria monocytogenes</i> gamma (γ) hemolytic bacteria; no hemolysis; lack of clearing; agar color unchanged around bacterial colonies Examples: <i>Staphylococcus epidermidis</i>; <i>Enterococcus faecalis</i>
EOSIN-METHYLENE BLUE (EMB) AGAR 	Yes – Gram (-) bacteria grow while Gram (+) bacteria inhibited by the eosin and methylene blue dyes	Yes – Gram (-) bacteria form colonies of different colors; this differentiates lactose fermenters (blue-black) from non-fermenters (colorless or light purple)	<ul style="list-style-type: none"> used for isolation of fecal coliforms under acidic conditions, a dark purple complex usually accompanied by a green metallic sheen produced which serves as an indicator of the vigorous lactose and/or sucrose fermentation typical of fecal coliforms smaller amounts of acid production (typical of slow lactose fermenters) result in a pink coloration of the growth non-fermenters remain their normal color or take on the coloration of the medium <i>E. coli</i> - dark metallic blue-black colonies; strong lactose fermenter <i>Enterobacter aerogenes</i> - pink colonies; smaller amount of acid <i>Klebsiella pneumonia</i> - brown colonies; no fermentation

<p>MANNITOL SALT AGAR (MSA)</p> 	<p>Yes – due to the presence of salt (NaCl); selective for staphylococci since most other bacteria cannot survive</p>	<p>Yes – due to the presence of mannitol; the pH indicator phenol red is yellow below pH 6.8, red at pH 7.4 to 8.4 and pink above 8.4; if bacteria ferment mannitol and converts it to lactic acid, the pH of the agar changes and pink pH sensitive dye in the agar turns yellow</p>	<ul style="list-style-type: none"> • used for isolation and differentiation of pathogenic staphylococci, mainly <i>Staphylococcus aureus</i> • contains the carbohydrate mannitol, 7.5% NaCl and the pH indicator phenol red • pathogenic species of Staphylococcus ferment mannitol and produce acid, which turns the pH indicator yellow • nonpathogenic staphylococcal species grow but do not ferment mannitol, the pink pH sensitive dye is unchanged (<i>Staphylococcus epidermidis</i>) • the development of yellow halos around the bacterial growth is presumptive evidence that the organism is a pathogenic Staphylococcus (generally <i>Staphylococcus aureus</i>) • some strains of <i>Staphylococcus epidermidis</i> are inhibited by MSA • colonies of <i>Staphylococcus epidermidis</i> are small and red whereas those of <i>Staphylococcus aureus</i> are slightly larger and yellow
<p>BBL ENTEROTUBE-II</p> 	<p>N/A</p>	<p>Yes – as it has twelve different media that allow the determination of 15 biochemical reactions; the resulting combination of reactions, together with the interpretation codebook, allow identification of clinically significant <i>Enterobacteriaceae</i></p>	<ul style="list-style-type: none"> • rapid, multi test system used to identify <i>Enterobacteriaceae</i> and a variety of other oxidase negative Gram (-) rods that cause gastrointestinal and urinary infections • utilizes carbohydrates, principally via fermentation and oxidation • catalase positive and nearly all of them are oxidase negative
<p>CHOCOLATE II AGAR</p> 	<p>No</p>	<p>No</p>	<ul style="list-style-type: none"> • enriched medium that allows the isolation and cultivation of <i>Neisseria</i> or <i>Haemophilus</i> species (both are fastidious bacteria) • contains casein, peptones, phosphate buffer, corn starch, bovine hemoglobin • also contains an enrichment supplement of amino and nucleic acids to encourage growth of <i>Neisseria</i> species and provide the X and V blood factors required by <i>Hemophilus</i> species • plated medium is typically streaked for isolation and incubated at 37°C in an aerobic environment enriched with CO₂
<p>MACCONKEY AGAR</p> 	<p>Yes – due to the fact that bile salts and crystal violet inhibit growth of Gram (+) bacteria</p>	<p>Yes – neutral red dye is a pH indicator that is colorless above a pH of 6.8 and red at a pH below 6.8; acid accumulating from lactose fermentation turns the dye red</p>	<ul style="list-style-type: none"> • medium contains lactose, bile salts, neutral red and crystal violet • used to isolate and differentiate members of the <i>Enterobacteriaceae</i> family based on the ability to ferment lactose • selects for nonfastidious Gram(-) enterics due to presence of bile salts and crystal violet • lactose fermenters (coliforms) turn a shade of red whereas lactose non-fermenters (noncoliforms) remain their normal color or the color of the medium • medium can be modified to include MacConkey Agar w/o CV (without crystal violet) to allow detection of Gram (+) cocci or MacConkey Agar CS to control swarming bacteria (such as <i>Proteus</i>) that interfere with other results