

UAB Gnotobiotic Facility

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PURPOSE

In the last two decades it has become clear that the microbiota (microbial inhabitants) of the human body and their interactions with the host are far more complex than previously recognized, and have major roles in health and disease, including inflammatory bowel diseases (IBD; Crohn's disease and ulcerative colitis, obesity, type 2 diabetes, hypertension, atherosclerosis, colon cancer, hypersensitivity diseases such as asthma, hepatic metabolism of xenobiotics, and neurological development and behavior. Gnotobiotic and "humanized" animal models are essential tools for investigating the role of the microbiome in health and disease. The purpose of this facility is to provide UAB investigators access to such models.

SERVICES

- Hysterectomy derivation of germfree mice
- Establishing defined microbiota in germfree mice
- Monitoring microbiological status of gnotobiotic mice
- Maintaining breeding stocks
- Providing isolator housing for experimental mice
- Performing procedures in isolator housed mice such as injections and collecting tissue and fecal samples
- Consultation regarding experiments using gnotobiotic mice
- Training in gnotobiotic techniques

TERMINOLOGY

- **Germfree:** Lacking all microbes except endogenous retroviruses. Syn. axenic: a- (without) + Gr. *xenos* (stranger) => "without strangers"
- **Gnotobiotic:** Gr. *gnotos* (known) + biota (life) => "known life." Syn. defined flora/microbiota (germfree colonized with one or more known organisms, e.g. Altered Schaedler Flora)

DERIVATIONS

1. BALB/c *Rag2*^{-/-}
2. C57BL/6 *Rag1*^{-/-}
3. MRL/MpJ *Fas*^{lpr}/*Fas*^{lpr} *Selp*^{-/-} *Sele*^{-/-}
4. C57BL/6 MMP7^{-/-}
5. B6.SJL-*Ptpcr*^a*Pepc*^b/BoyJ (B6 CD45.1)
6. B6 10BiT.Foxp3^{gfp}
7. 129 *Gata*^{4tm1.1Sad}/J x B6.SJL-Tg(Vil-cre)997Gum/J
8. B6 CBir1 TCR Tg x *Tcr*^a^{-/-}
9. TCRβ^{-/-} (B6.129P2-*Tcr*^{btm1Mom}/J)
10. B10.A/SgSnAi-*Ighm*^{tm1Cgn}
11. TCR^{mini}Foxp3^{gfp}
12. NOD
13. KRN
14. Btk^{-/-} NOD
15. BXD2

HYSTERECTOMY DERIVATION

	A	B	C	D	E	F	G
1	GGEMC Derivation Schedule ¹						
2	Strain to be derived: 10BiT.Foxp3 ^{gfp}						
3							
4	Sun	Mon	Tue	Wed	Thu	Fri	Sat
5	6/3/07	6/4/07	6/5/07	6/6/07	6/7/07	6/8/07	6/9/07
6		p.m.: mate foster mice	mate foster mice	a.m.: separate foster mice	a.m.: separate donor mice	1.5 dpc	2.5 dpc
7							
8	6/10/07	6/11/07	6/12/07	6/13/07	6/14/07	6/15/07	6/16/07
9	3.5 dpc	4.5 dpc	5.5 dpc	6.5 dpc	7.5 dpc	8.5 dpc	9.5 dpc
10							
11	6/17/07	6/18/07	6/19/07	6/20/07	6/21/07	6/22/07	6/23/07
12	10.5 dpc	11.5 dpc	12.5 dpc ²	13.5 dpc	14.5 dpc	15.5 dpc	16.5 dpc
13							
14	6/24/07	6/25/07	6/26/07	6/27/07	6/28/07	6/29/07	6/30/07
15	17.5 dpc	18.5 dpc	19.5 dpc				
16		progesterone	hysterectomy				
17							
18							
19	¹ Enter mouse strain and date of first Monday in 1/1/01 format.						
20	² Transfer foster mothers to derivation isolator.						
21							

Timed matings of donor and foster mice



Forceps and string for transferring uterus



Sterilant-filled trap connected to isolator



Removing uterus from donor mother



Pups removed from uterus inside isolator



Newly derived and foster pups

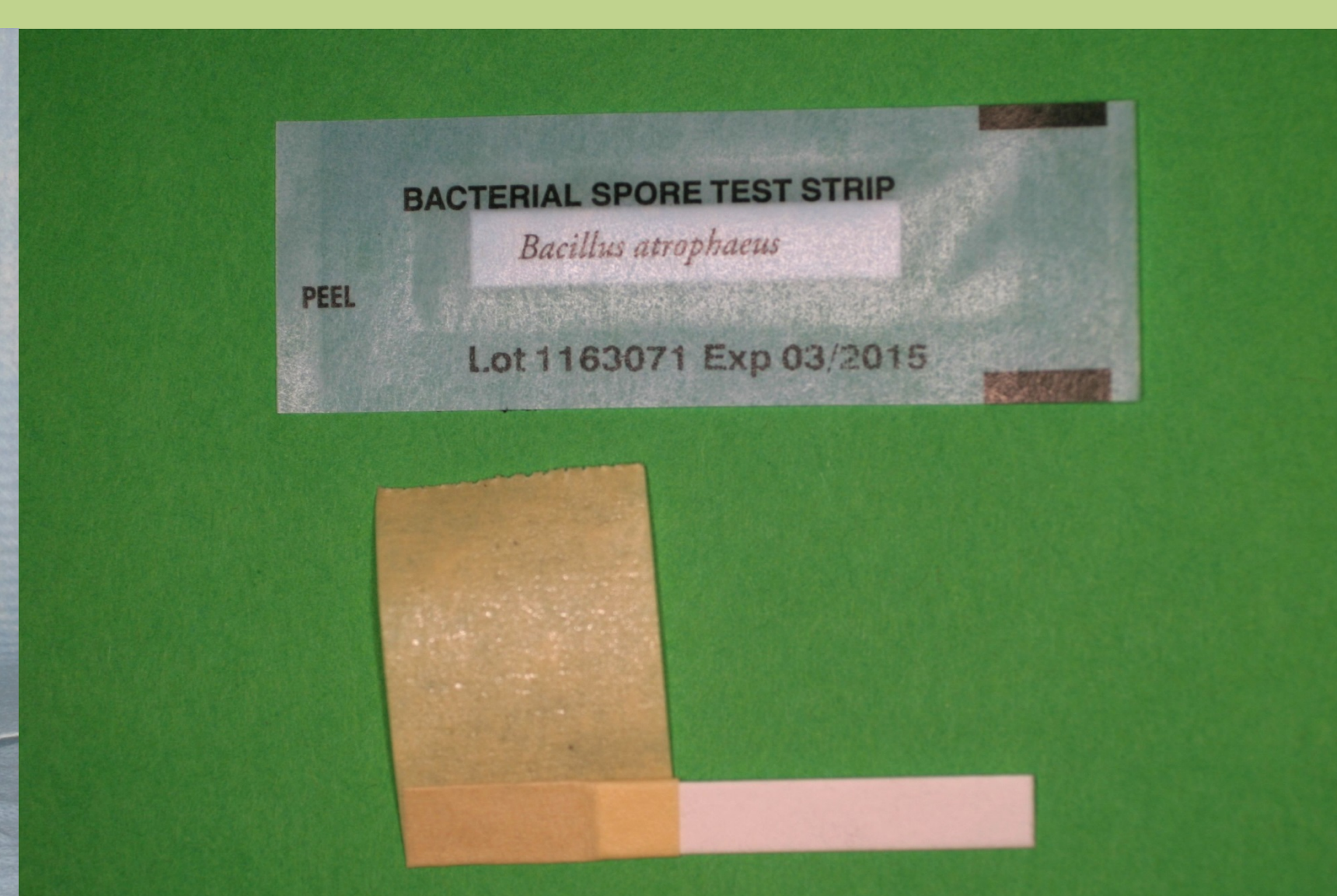
CURRENT STOCKS

1. B6 10BiT.Foxp3^{gfp} GF
2. B6 10BiT.Foxp3^{gfp} ASF
3. B6 CD45.1 GF
4. B6 CD45.1 ASF
5. B6 Rag GF
6. B6 Rag ASF
7. B6 Rag ASF *H. hepaticus*
8. CBir1 TCR Tg *Tcr*^a^{-/-} GF
9. TCRβ^{-/-} GF
10. SWGF

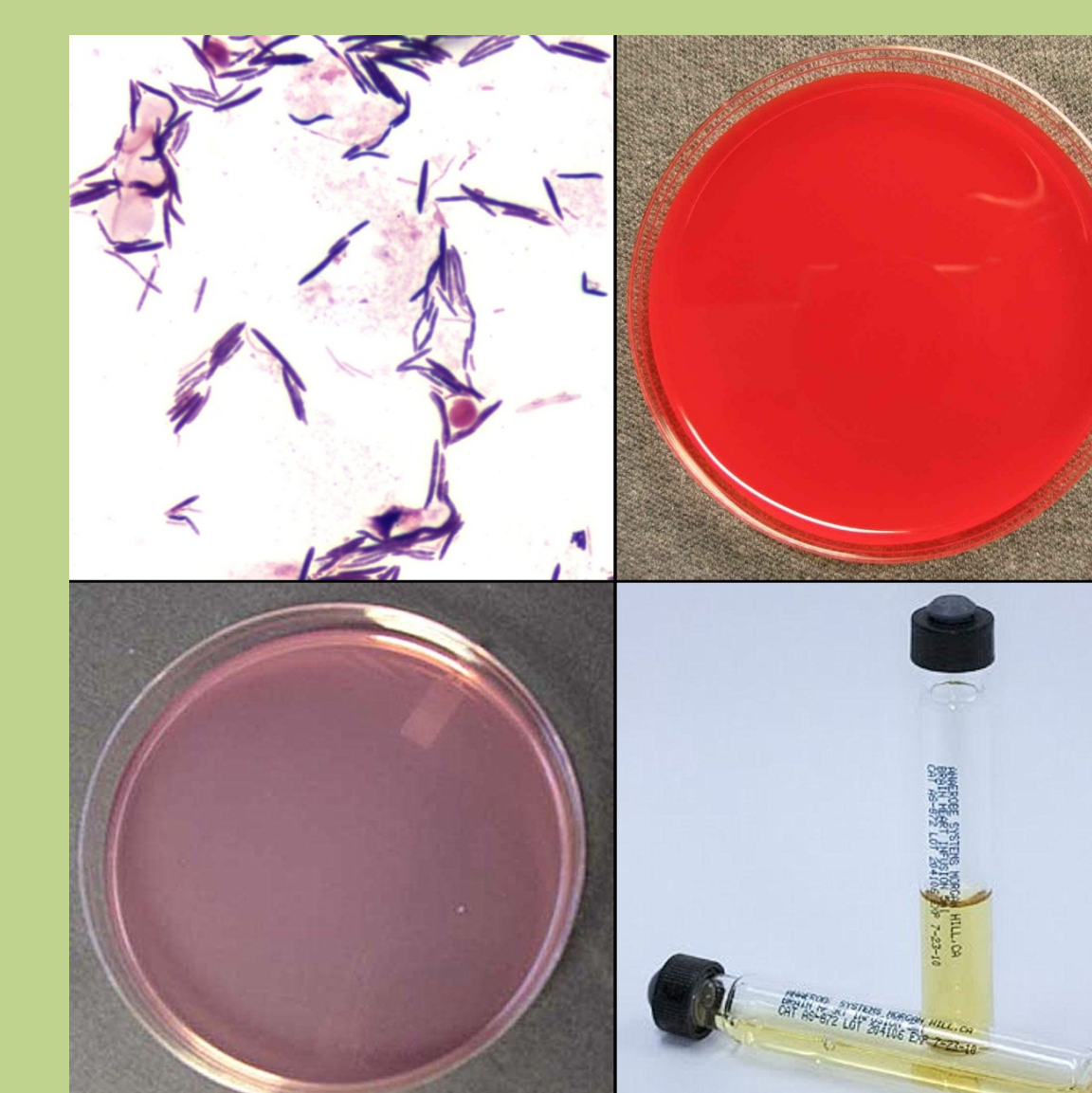
QUALITY ASSURANCE



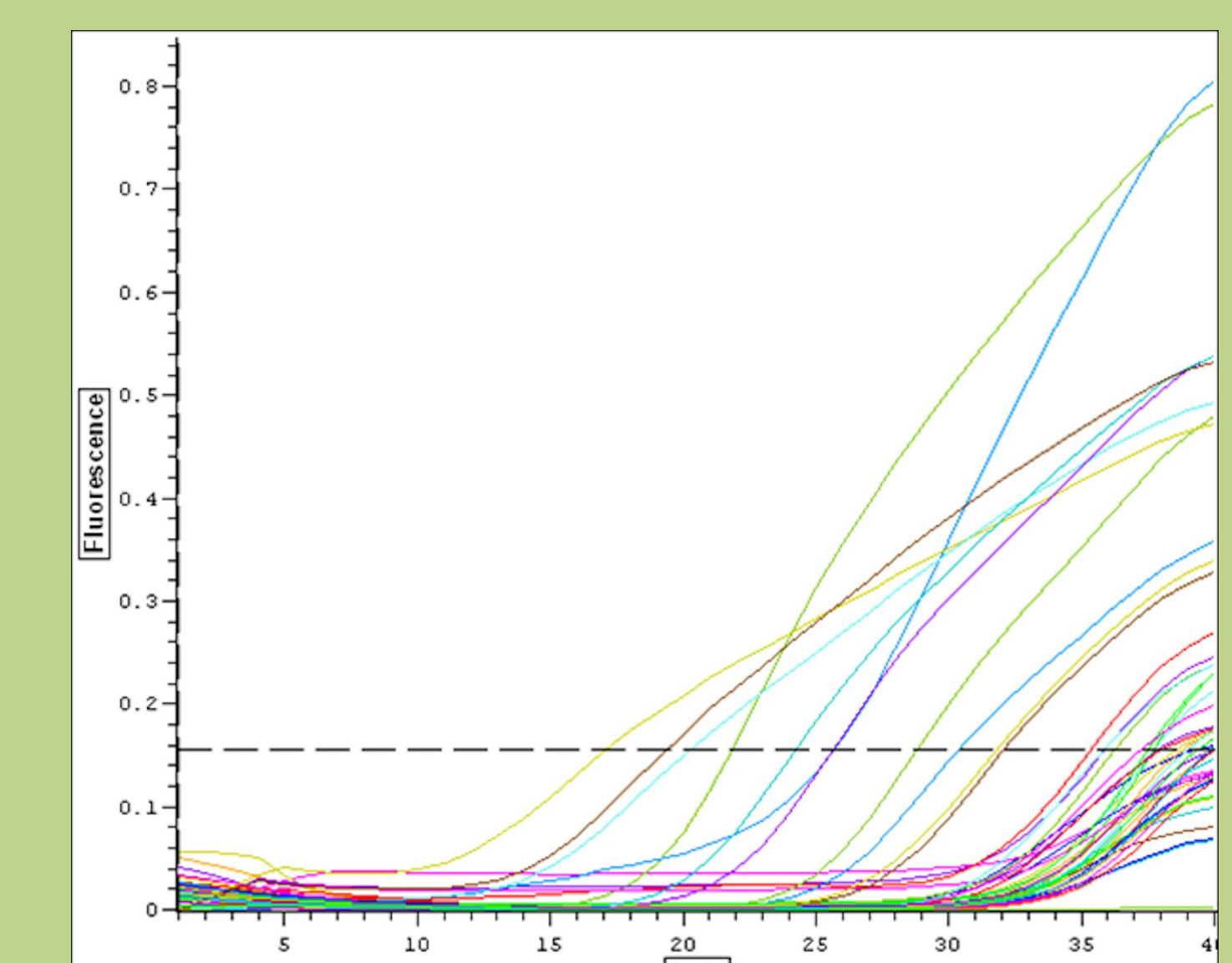
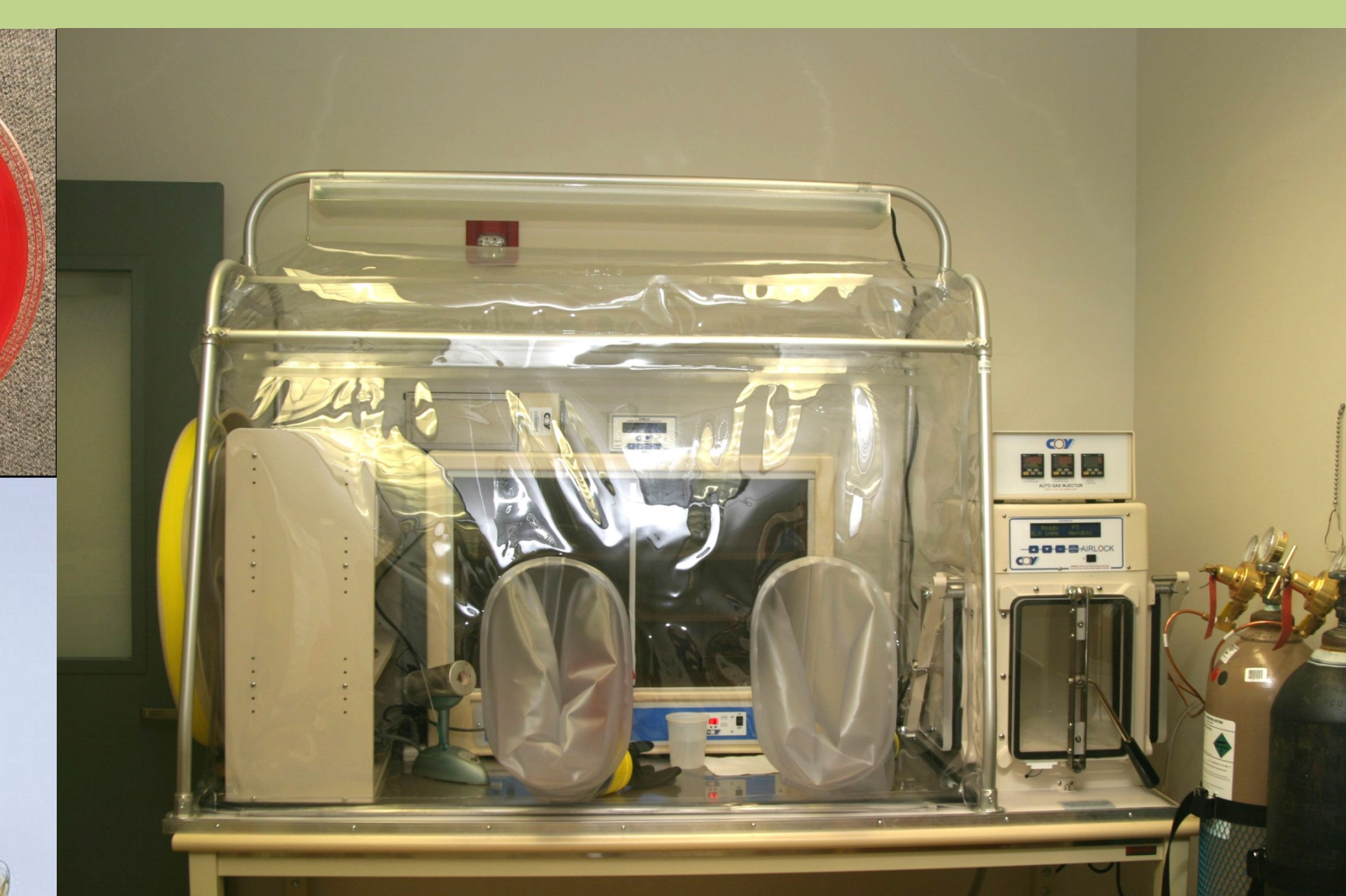
Procedure validation



Biological indicators



Aerobic, anaerobic, and fungal cultures



RT PCR